

Abstract

The invention relates to plant transcription factor polypeptides, polynucleotides that encode them, homologs from a variety of plant species, and methods of using the polynucleotides and polypeptides to produce transgenic plants having advantageous properties compared to a reference plant. Sequence information related to these polynucleotides and polypeptides can also be used in bioinformatic search methods and is also disclosed.

SEQUENCE LISTING

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<110> Adam, Luc
      Creelman, Robert
      Dubell, Arnold
      Heard, Jacqueline
      Jiang, Cai-Zhong
      Keddie, James
      Pilgrim, Marsha
      Ratcliffe, Oliver
      Reuber, T. Lynne
      Riechmann, Jose Luis
      Yu, Guo-Liang
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Phe Asp Cys Ser Thr Thr Asn His Arg Lys Arg Ser Lys Ala Glu Leu	15	20	25	30	
ggt aga gag ttt tct tta aat tac atc aag aat gag gat tct ttg caa					566
Gly Arg Glu Phe Ser Leu Asn Tyr Ile Lys Asn Glu Asp Ser Leu Gln		35	40	45	
acc acc ttt caa gaa agt tca cga gga gct ctt cgt gaa agg att gct					614
Thr Thr Phe Gln Glu Ser Ser Arg Gly Ala Leu Arg Glu Arg Ile Ala		50	55	60	
gcg aga tcc ggg ttt aat gca ccg tgg tta aac act gag gat att ctt					662
Ala Arg Ser Gly Phe Asn Ala Pro Trp Leu Asn Thr Glu Asp Ile Leu		65	70	75	
cag tcg aaa tct tta acc atc tct tct cct ggt ctt agt cct gca act					710
Gln Ser Lys Ser Leu Thr Ile Ser Ser Pro Gly Leu Ser Pro Ala Thr		80	85	90	
ctg tta gag tct cct gtt ttc ctc tca aac cct ttg cta tct cca aca					758
Leu Leu Glu Ser Pro Val Phe Leu Ser Asn Pro Leu Leu Ser Pro Thr		95	100	105	
acc ggg aag ctc tca tca gta cct tct gat aag gct aaa gct gag tta					806
Thr Gly Lys Leu Ser Ser Val Pro Ser Asp Lys Ala Lys Ala Glu Leu		115	120	125	
ttt gac gac att acc aca tcc tta gcc ttc caa acc att tca gga agt					854
Phe Asp Asp Ile Thr Thr Ser Leu Ala Phe Gln Thr Ile Ser Gly Ser		130	135	140	
ggc ctt gat cct act aac atc gct tta gaa ccc gat gat tcc caa gac					902
Gly Leu Asp Pro Thr Asn Ile Ala Leu Glu Pro Asp Ser Ser Gln Asp		145	150	155	
tat gaa gaa aga cag ctc ggc ggt tta gga gac tcg atg gct tgt tgt					950
Tyr Glu Glu Arg Gln Leu Gly Gly Leu Gly Asp Ser Met Ala Cys Cys		160	165	170	
gca cct gca gat gat gga tac aac tgg aga aaa tat gga caa aag cta					998
Ala Pro Ala Asp Asp Gly Tyr Asn Trp Arg Lys Tyr Gly Gln Lys Leu		175	180	185	
gtt aaa gga agt gag tat ccg cgg agc tat tac aag tgc acg cac ccg					1046
Val Lys Gly Ser Glu Tyr Pro Arg Ser Tyr Tyr Lys Cys Thr His Pro		195	200	205	
aat tgt gag gcc aag aag aag gtt gaa cgg tct cgg gaa ggt cat att					1094
Asn Cys Glu Ala Lys Lys Lys Val Glu Arg Ser Arg Glu Gly His Ile		210	215	220	
ata gag atc ata tac aca gga gat cat ata cac agc aaa cct cca cct					1142
Ile Glu Ile Ile Tyr Thr Gly Asp His Ile His Ser Lys Pro Pro Pro		225	230	235	
aac cgc cgg tca ggg att gga tca tcc ggt act ggc caa gac atg caa					1190
Asn Arg Arg Ser Gly Ile Gly Ser Ser Gly Thr Gly Gln Asp Met Gln					

240	245	250	
ata gat gca acc gaa tac gaa ggt ttt gct gga acc aat gag aac ata Ile Asp Ala Thr Glu Tyr Glu Gly Phe Ala Gly Thr Asn Glu Asn Ile 255 260 265 270			1238
gaa tgg aca tca cct gta tct gca gag ctc gaa tac gga agc cat tca Glu Trp Thr Ser Pro Val Ser Ala Glu Leu Glu Tyr Gly Ser His Ser 275 280 285			1286
gga tca atg cag gtt caa aac ggg act cat cag ttc ggg tat ggt gat Gly Ser Met Gln Val Gln Asn Gly Thr His Gln Phe Gly Tyr Gly Asp 290 295 300			1334
gca gca gct gat gcc tta tat aga gat gaa aac gaa gat gat cgc acg Ala Ala Ala Asp Ala Leu Tyr Arg Asp Glu Asn Glu Asp Asp Arg Thr 305 310 315			1382
tcc cac atg agt gtt tcc ctg act tac gat gga gag gta gaa gag tcc Ser His Met Ser Val Ser Leu Thr Tyr Asp Gly Glu Val Glu Glu Ser 320 325 330			1430
gaa tca aag aga agg aaa cta gaa gct tat gca aca gaa acg agt gga Glu Ser Lys Arg Arg Lys Leu Glu Ala Tyr Ala Thr Glu Thr Ser Gly 335 340 345 350			1478
tca acc aga gcc agc cgt gag cca aga gtt gtg gtg cag acc aca agt Ser Thr Arg Ala Ser Arg Glu Pro Arg Val Val Val Gln Thr Thr Ser 355 360 365			1526
gac att gac atc ctc gat gat ggt tat cgc tgg cgc aag tat ggg caa Asp Ile Asp Ile Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln 370 375 380			1574
aaa gtc gtt aaa gga aac ccg aat cca agg agc tac tat aaa tgc aca Lys Val Val Lys Gly Asn Pro Asn Pro Arg Ser Tyr Tyr Lys Cys Thr 385 390 395			1622
gct aat gga tgt acc gta acg aag cat gta gag aga gcc tct gat gac Ala Asn Gly Cys Thr Val Thr Lys His Val Glu Arg Ala Ser Asp Asp 400 405 410			1670
ttc aag agc gta cta aca act tat ata ggc aag cac acc cac gtt gta Phe Lys Ser Val Leu Thr Thr Tyr Ile Gly Lys His Thr His Val Val 415 420 425 430			1718
cca gca gca cgc aac agc agc cac gtc ggt gca ggc agt tca ggg act Pro Ala Ala Arg Asn Ser Ser His Val Gly Ala Gly Ser Ser Gly Thr 435 440 445			1766
ctc caa ggc agt tta gcg act cag acc cac aac cac aat gtg cac tat Leu Gln Gly Ser Leu Ala Thr Gln Thr His Asn His Asn Val His Tyr 450 455 460			1814
cca atg cca cac agt aga tct gag gga ctg gcc aca gcc aac tca tct Pro Met Pro His Ser Arg Ser Glu Gly Leu Ala Thr Ala Asn Ser Ser 465 470 475			1862

cta ttt gac ttc cag tca cac ctg agg cat cct aca ggt ttc tcc gtt 1910
 Leu Phe Asp Phe Gln Ser His Leu Arg His Pro Thr Gly Phe Ser Val
 480 485 490

tac ata ggc caa tct gag ctt tct gat ctt tca atg cct ggt cta act 1958
 Tyr Ile Gly Gln Ser Glu Leu Ser Asp Leu Ser Met Pro Gly Leu Thr
 495 500 505 510

att ggg caa gag aag ctt acc agc ctg cag gcg cct gac att ggg gat 2006
 Ile Gly Gln Glu Lys Leu Thr Ser Leu Gln Ala Pro Asp Ile Gly Asp
 515 520 525

cca act ggc cta atg ttg cag tta gca gca cag ccg aag gtg gaa cca 2054
 Pro Thr Gly Leu Met Leu Gln Leu Ala Gln Pro Lys Val Glu Pro
 530 535 540

gtg tca cca caa cag gga ctt gat ttg tca gcg agc tca ttg ata tgc 2102
 Val Ser Pro Gln Gln Gly Leu Asp Leu Ser Ala Ser Ser Leu Ile Cys
 545 550 555

aga gag atg ttg agt aga tta cga cag ata tga aacaaatctc tttgttcaact 2155
 Arg Glu Met Leu Ser Arg Leu Arg Gln Ile
 560 565

gattgctcaa atttttgaat aaatgaaaaa ttgagaaaaa aaaaaaaaaa aaaaaaaaaa 2215

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Met Ala Gly Ile Asp Asn Lys Ala Ala Val Met Gly Glu Trp Phe Asp
 1 5 10 15

Cys Ser Thr Thr Asn His Arg Lys Arg Ser Lys Ala Glu Leu Gly Arg
 20 25 30

Glu Phe Ser Leu Asn Tyr Ile Lys Asn Glu Asp Ser Leu Gln Thr Thr
 35 40 45

Phe Gln Glu Ser Ser Arg Gly Ala Leu Arg Glu Arg Ile Ala Ala Arg
 50 55 60

Ser Gly Phe Asn Ala Pro Trp Leu Asn Thr Glu Asp Ile Leu Gln Ser
 65 70 75 80

Lys Ser Leu Thr Ile Ser Ser Pro Gly Leu Ser Pro Ala Thr Leu Leu
 85 90 95

Glu Ser Pro Val Phe Leu Ser Asn Pro Leu Leu Ser Pro Thr Thr Gly
 100 105 110

Lys Leu Ser Ser Val Pro Ser Asp Lys Ala Lys Ala Glu Leu Phe Asp
 115 120 125

Asp Ile Thr Thr Ser Leu Ala Phe Gln Thr Ile Ser Gly Ser Gly Leu
 130 135 140

Asp Pro Thr Asn Ile Ala Leu Glu Pro Asp Asp Ser Gln Asp Tyr Glu
 145 150 155 160

Glu Arg Gln Leu Gly Gly Leu Gly Asp Ser Met Ala Cys Cys Ala Pro
 165 170 175

Ala Asp Asp Gly Tyr Asn Trp Arg Lys Tyr Gly Gln Lys Leu Val Lys
 180 185 190

Gly Ser Glu Tyr Pro Arg Ser Tyr Tyr Lys Cys Thr His Pro Asn Cys
 195 200 205

Glu Ala Lys Lys Lys Val Glu Arg Ser Arg Glu Gly His Ile Ile Glu
 210 215 220

Ile Ile Tyr Thr Gly Asp His Ile His Ser Lys Pro Pro Pro Asn Arg
 225 230 235 240

Arg Ser Gly Ile Gly Ser Ser Gly Thr Gly Gln Asp Met Gln Ile Asp
 245 250 255

Ala Thr Glu Tyr Glu Gly Phe Ala Gly Thr Asn Glu Asn Ile Glu Trp
 260 265 270

Thr Ser Pro Val Ser Ala Glu Leu Glu Tyr Gly Ser His Ser Gly Ser
 275 280 285

Met Gln Val Gln Asn Gly Thr His Gln Phe Gly Tyr Gly Asp Ala Ala
 290 295 300

Ala Asp Ala Leu Tyr Arg Asp Glu Asn Glu Asp Asp Arg Thr Ser His
 305 310 315 320

Met Ser Val Ser Leu Thr Tyr Asp Gly Glu Val Glu Glu Ser Glu Ser
 325 330 335

Lys Arg Arg Lys Leu Glu Ala Tyr Ala Thr Glu Thr Ser Gly Ser Thr
 340 345 350
 Arg Ala Ser Arg Glu Pro Arg Val Val Val Gln Thr Thr Ser Asp Ile
 355 360 365
 Asp Ile Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Val
 370 375 380
 Val Lys Gly Asn Pro Asn Pro Arg Ser Tyr Tyr Lys Cys Thr Ala Asn
 385 390 395 400
 Gly Cys Thr Val Thr Lys His Val Glu Arg Ala Ser Asp Asp Phe Lys
 405 410 415
 Ser Val Leu Thr Thr Tyr Ile Gly Lys His Thr His Val Val Pro Ala
 420 425 430
 Ala Arg Asn Ser Ser His Val Gly Ala Gly Ser Ser Gly Thr Leu Gln
 435 440 445
 Gly Ser Leu Ala Thr Gln Thr His Asn His Asn Val His Tyr Pro Met
 450 455 460
 Pro His Ser Arg Ser Glu Gly Leu Ala Thr Ala Asn Ser Ser Leu Phe
 465 470 475 480
 Asp Phe Gln Ser His Leu Arg His Pro Thr Gly Phe Ser Val Tyr Ile
 485 490 495
 Gly Gln Ser Glu Leu Ser Asp Leu Ser Met Pro Gly Leu Thr Ile Gly
 500 505 510
 Gln Glu Lys Leu Thr Ser Leu Gln Ala Pro Asp Ile Gly Asp Pro Thr
 515 520 525
 Gly Leu Met Leu Gln Leu Ala Ala Gln Pro Lys Val Glu Pro Val Ser
 530 535 540
 Pro Gln Gln Gly Leu Asp Leu Ser Ala Ser Ser Leu Ile Cys Arg Glu
 545 550 555 560
 Met Leu Ser Arg Leu Arg Gln Ile

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Arg Asn Tyr Ile Ser Gly Val Gly Ala Asp Ser Phe Ala Val Gln Glu
      10           15           20

gca gct gct tca gga ctc aaa agt atc gaa aat ttc atc ggt tta atg      150
Ala Ala Ala Ser Gly Leu Lys Ser Ile Glu Asn Phe Ile Gly Leu Met
      25           30           35

tct cgt gat agc ttt aac tot gat cag cca tct tct tct tcc gcc tcc      198
Ser Arg Asp Ser Phe Asn Ser Asp Gln Pro Ser Ser Ser Ser Ala Ser
      40           45           50           55

gcc tcc gcc tcc gcc gcc gca gat ctt gaa tca gct cgt aac aca acg      246
Ala Ser Ala Ser Ala Ala Ala Asp Leu Glu Ser Ala Arg Asn Thr Thr
      60           65           70

gcg gac gcg gct gtt tca aag ttt aaa aga gtc ata tct ctc tta gat      294
Ala Asp Ala Ala Val Ser Lys Phe Lys Arg Val Ile Ser Leu Leu Asp
      75           80           85

cga act cga acc gga cac gcc cgg ttt aga cgt gct ccg gtt cat gtt      342
Arg Thr Arg Thr Gly His Ala Arg Phe Arg Arg Ala Pro Val His Val
      90           95           100

att tct ccg gtt ctt tta caa gaa gaa cca aaa acg acg ccg ttt cag      390
Ile Ser Pro Val Leu Leu Gln Glu Glu Pro Lys Thr Thr Pro Phe Gln
      105           110           115

tct cct ctt cct cct ccg ccg caa atg atc cga aaa ggt tcg ttt tct      438
Ser Pro Leu Pro Pro Pro Pro Gln Met Ile Arg Lys Gly Ser Phe Ser
      120           125           130           135

tca tcg atg aaa acg att gat ttc tca tct ctc tcc tct gta aca acg      486
Ser Ser Met Lys Thr Ile Asp Phe Ser Ser Leu Ser Ser Val Thr Thr
      140           145           150

gaa tca gac aac cag aag aag att cat cat cat caa cgt ccc tct gaa      534
Glu Ser Asp Asn Gln Lys Lys Ile His His His Gln Arg Pro Ser Glu
      155           160           165

acg gcg ccg ttt gcg tct caa act caa agc ctc tcc acg acg gtc tcg      582
Thr Ala Pro Phe Ala Ser Gln Thr Gln Ser Leu Ser Thr Thr Val Ser
      170           175           180

tct ttc tca aaa tca aca aag aga aaa tgt aac tct gag aat ctt ctc      630
Ser Phe Ser Lys Ser Thr Lys Arg Lys Cys Asn Ser Glu Asn Leu Leu

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185

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acc gga aaa tgc gct tcc gct tct tcc tcc ggt cgt tgt cat tgc tcg 678
 Thr Gly Lys Cys Ala Ser Ala Ser Ser Gly Arg Cys His Cys Ser
 200 205 210 215

aag aaa aga aag ata aaa cag agg aga ata att agg gtt ccg gcg ata 726
 Lys Lys Arg Lys Ile Lys Gln Arg Arg Ile Ile Arg Val Pro Ala Ile
 220 225 230

agt gca aaa atg tcc gat gta cca ccg gac gat tat tca tgg agg aaa 774
 Ser Ala Lys Met Ser Asp Val Pro Pro Asp Asp Tyr Ser Trp Arg Lys
 235 240 245

tac gga caa aaa cca att aaa gga tct cca cat cca aga gga tat tat 822
 Tyr Gly Gln Lys Pro Ile Lys Gly Ser Pro His Pro Arg Gly Tyr Tyr
 250 255 260

aag tgt agt agc gta aga ggt tgt cca gca cgt aaa cat gtt gag aga 870
 Lys Cys Ser Ser Val Arg Gly Cys Pro Ala Arg Lys His Val Glu Arg
 265 270 275

gca gct gat gat tcg tcc atg ttg att gtt act tat gaa gga gat cat 918
 Ala Ala Asp Asp Ser Ser Met Leu Ile Val Thr Tyr Glu Gly Asp His
 280 285 290 295

aat cat tct ctc tcc gcc gct gat ctc gcc gga gcc gcc gtt gct gat 966
 Asn His Ser Leu Ser Ala Ala Asp Leu Ala Gly Ala Ala Val Ala Asp
 300 305 310

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 Leu Ile Leu Glu Ser Ser
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Asp Ser Phe Ala Val Gln Glu Ala Ala Ala Ser Gly Leu Lys Ser Ile
 20 25 30

Glu Asn Phe Ile Gly Leu Met Ser Arg Asp Ser Phe Asn Ser Asp Gln
 35 40 45

Pro Ser Ser Ser Ser Ala Ser Ala Ser Ala Ser Ala Ala Asp Leu
 50 55 60

Glu Ser Ala Arg Asn Thr Thr Ala Asp Ala Ala Val Ser Lys Phe Lys
 65 70 75 80

Arg Val Ile Ser Leu Asp Arg Thr Arg Thr Gly His Ala Arg Phe
 85 90 95

Arg Arg Ala Pro Val His Val Ile Ser Pro Val Leu Leu Gln Glu Glu
 100 105 110

Pro Lys Thr Thr Pro Phe Gln Ser Pro Leu Pro Pro Pro Gln Met
 115 120 125

Ile Arg Lys Gly Ser Phe Ser Ser Ser Met Lys Thr Ile Asp Phe Ser
 130 135 140

Ser Leu Ser Ser Val Thr Thr Glu Ser Asp Asn Gln Lys Lys Ile His
 145 150 155 160

His His Gln Arg Pro Ser Glu Thr Ala Pro Phe Ala Ser Gln Thr Gln
 165 170 175

Ser Leu Ser Thr Thr Val Ser Ser Phe Ser Lys Ser Thr Lys Arg Lys
 180 185 190

Cys Asn Ser Glu Asn Leu Leu Thr Gly Lys Cys Ala Ser Ala Ser Ser
 195 200 205

Ser Gly Arg Cys His Cys Ser Lys Lys Arg Lys Ile Lys Gln Arg Arg
 210 215 220

Ile Ile Arg Val Pro Ala Ile Ser Ala Lys Met Ser Asp Val Pro Pro
 225 230 235 240

Asp Asp Tyr Ser Trp Arg Lys Tyr Gly Gln Lys Pro Ile Lys Gly Ser
 245 250 255

Pro His Pro Arg Gly Tyr Tyr Lys Cys Ser Ser Val Arg Gly Cys Pro
 260 265 270

Ala Arg Lys His Val Glu Arg Ala Ala Asp Asp Ser Ser Met Leu Ile
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Val Thr Tyr Glu Gly Asp His Asn His Ser Leu Ser Ala Ala Asp Leu

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Ala Gly Ala Ala Val Ala Asp Leu Ile Leu Glu Ser Ser
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Met Glu
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ggt tcg tcc aaa ggg ttg agg aaa ggt gca tgg act gct gaa gaa gat 166
Gly Ser Ser Lys Gly Leu Arg Lys Gly Ala Trp Thr Ala Glu Glu Asp
5 10 15

agt ctc ttg agg cta tgt att gat aag tat gga gaa ggc aaa tgg cat 214
Ser Leu Leu Arg Leu Cys Ile Asp Lys Tyr Gly Glu Gly Lys Trp His
20 25 30

caa gtt cct ttg aga gct ggg cta aat cga tgc aga aag agt tgt aga 262
Gln Val Pro Leu Arg Ala Gly Leu Asn Arg Cys Arg Lys Ser Cys Arg
35 40 45 50

cta aga tgg ttg aac tat ttg aag cca agt atc aag aga gga aga ctt 310
Leu Arg Trp Leu Asn Tyr Leu Lys Pro Ser Ile Lys Arg Gly Arg Leu
55 60 65

agc aat gat gaa gtt gat ctt ctt ctt cgc ctt cat aag ctt cta gga 358
Ser Asn Asp Glu Val Asp Leu Leu Arg Leu His Lys Leu Leu Gly
70 75 80

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Asn Arg Trp Ser Leu Ile Ala Gly Arg Leu Pro Gly Arg Thr Ala Asn
85 90 95

gat gtc aaa aat tac tgg aac acc cat ctg agt aaa aaa cat gag tct 454
Asp Val Lys Lys Asn Tyr Trp Asn Thr His Leu Ser Lys Lys His Glu Ser
100 105 110

tcg tgt tgt aag tct aaa atg aaa aag aaa aac att att tcc cct cct 502
Ser Cys Cys Lys Ser Lys Met Lys Lys Lys Asn Ile Ile Ser Pro Pro
115 120 125 130

aca aca ccg gtc caa aaa atc ggt gtt ttt aag cct cga cct cga tcc 550
Thr Thr Pro Val Gln Lys Ile Gly Val Phe Lys Pro Arg Pro Arg Ser
135 140 145

ttc tct gtt aac aat ggt tgc agc cat ctc aat ggt ctg cca gaa gtt 598
Phe Ser Val Asn Asn Gly Cys Ser His Leu Asn Gly Leu Pro Glu Val
150 155 160

gat tta att cct tca tgc ctt gga ctc aag aaa aat aat gtt tgt gaa 646
Asp Leu Ile Pro Ser Cys Leu Gly Leu Lys Lys Asn Asn Val Cys Glu
165 170 175

aat agt atc aca tgt aac aaa gat gat gag aaa gat gat ttt gtg aat 694
Asn Ser Ile Thr Cys Asn Lys Asp Asp Glu Lys Asp Asp Phe Val Asn
180 185 190

aat cta atg aat gga gat aat atg tgg ttg gag aat tta ctg ggg gaa 742
Asn Leu Met Asn Gly Asp Asn Met Trp Leu Glu Asn Leu Leu Gly Glu
195 200 205 210

aac caa gaa gct gat gcg att gtt cct gaa gcg acg aca gct gaa cat 790
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215 220 225

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Gly Ala Thr Leu Ala Phe Asp Val Glu Gln Leu Trp Ser Leu Phe Asp
230 235 240

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Gly Glu Thr Val Glu Leu Asp
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Trp His Gln Val Pro Leu Arg Ala Gly Leu Asn Arg Cys Arg Lys Ser
35 40 45

Cys Arg Leu Arg Trp Leu Asn Tyr Leu Lys Pro Ser Ile Lys Arg Gly
50 55 60

Arg Leu Ser Asn Asp Glu Val Asp Leu Leu Leu Arg Leu His Lys Leu
65 70 75 80

Leu Gly Asn Arg Trp Ser Leu Ile Ala Gly Arg Leu Pro Gly Arg Thr
85 90 95

Ala Asn Asp Val Lys Asn Tyr Trp Asn Thr His Leu Ser Lys Lys His
100 105 110

Glu Ser Ser Cys Cys Lys Ser Lys Met Lys Lys Lys Asn Ile Ile Ser
115 120 125

Pro Pro Thr Thr Pro Val Gln Lys Ile Gly Val Phe Lys Pro Arg Pro
130 135 140

Arg Ser Phe Ser Val Asn Asn Gly Cys Ser His Leu Asn Gly Leu Pro
145 150 155 160

Glu Val Asp Leu Ile Pro Ser Cys Leu Gly Leu Lys Lys Asn Asn Val
165 170 175

Cys Glu Asn Ser Ile Thr Cys Asn Lys Asp Asp Glu Lys Asp Phe
180 185 190

Val Asn Asn Leu Met Asn Gly Asp Asn Met Trp Leu Glu Asn Leu Leu
195 200 205

Gly Glu Asn Gln Glu Ala Asp Ala Ile Val Pro Glu Ala Thr Thr Ala
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Ile Cys Glu Thr Pro Ala Ile Thr Pro Ala Lys Lys Ser Ser Val Gly
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aac tta tac agg atg gga agc gga tca agc gtt gtg tta gat tca gag 204
Asn Leu Tyr Arg Met Gly Ser Gly Ser Ser Val Val Leu Asp Ser Glu
35 40 45

aac ggc gta gaa got gaa tct agg aag ctt ccg tcg tca aaa tac aaa	252
Asn Gly Val Glu Ala Glu Ser Arg Lys Leu Pro Ser Lys Tyr Lys	
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Gly Val Val Pro Gln Pro Asn Gly Arg Trp Gly Ala Gln Ile Tyr Glu	
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Lys His Gln Arg Val Trp Leu Gly Thr Phe Asn Glu Glu Asp Glu Ala	
80 85 90 95	
gct cgt gcc tac gac gtc gcg gtt cac agg ttc cgt cgc cgt gac gcc	396
Ala Arg Ala Tyr Asp Val Ala Val His Arg Phe Arg Arg Arg Asp Ala	
100 105 110	
gtc aca aat ttc aaa gac gtg aag atg gac gaa gac gag gtc gat ttc	444
Val Thr Asn Phe Lys Asp Val Lys Met Asp Glu Asp Glu Val Asp Phe	
115 120 125	
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Leu Asn Ser His Ser Lys Ser Glu Ile Val Asp Met Leu Arg Lys His	
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Thr Tyr Asn Glu Glu Leu Glu Gln Ser Lys Arg Arg Arg Asn Gly Asn	
145 150 155	
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Gly Asn Met Thr Arg Thr Leu Leu Thr Ser Gly Leu Ser Asn Asp Gly	
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Val Ser Thr Thr Gly Phe Arg Ser Ala Glu Ala Leu Phe Glu Lys Ala	
180 185 190	
gta acg cca agc gac gtt ggg aag cta aac cgt ttg gtt ata ccg aaa	684
Val Thr Pro Ser Asp Val Gly Lys Leu Asn Arg Leu Val Ile Pro Lys	
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His His Ala Glu Lys His Phe Pro Leu Pro Ser Ser Asn Val Ser Val	
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Lys Gly Val Leu Leu Asn Phe Glu Asp Val Asn Gly Lys Val Trp Arg	
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Phe Arg Tyr Ser Tyr Trp Asn Ser Ser Gln Ser Tyr Val Leu Thr Lys	
240 245 250 255	
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Gly Trp Ser Arg Phe Val Lys Glu Lys Asn Leu Arg Ala Gly Asp Val	
260 265 270	

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Val Ser Phe Ser Arg Ser Asn Gly Gln Asp Gln Gln Leu Tyr Ile Gly
275 280 285

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Trp Lys Ser Arg Ser Gly Ser Asp Leu Asp Ala Gly Arg Val Leu Arg
290 295 300

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Leu Phe Gly Val Asn Ile Ser Pro Glu Ser Ser Arg Asn Asp Val Val
305 310 315

gga aac aaa aga gtg aac gat act gag atg tta tcg ttg gtg tgt agc 1068
Gly Asn Lys Arg Val Asn Asp Thr Glu Met Leu Ser Leu Val Cys Ser
320 325 330 335

aag aag caa cgc atc ttt cac gcc tcg taa caactcttct tctttttttt 1118
Lys Lys Gln Arg Ile Phe His Ala Ser
340

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35 40 45

Gly Val Glu Ala Glu Ser Arg Lys Leu Pro Ser Ser Lys Tyr Lys Gly
50 55 60

Val Val Pro Gln Pro Asn Gly Arg Trp Gly Ala Gln Ile Tyr Glu Lys
65 70 75 80

His Gln Arg Val Trp Leu Gly Thr Phe Asn Glu Glu Asp Glu Ala Ala
85 90 95

Arg Ala Tyr Asp Val Ala Val His Arg Phe Arg Arg Arg Asp Ala Val
100 105 110

Thr Asn Phe Lys Asp Val Lys Met Asp Glu Asp Glu Val Asp Phe Leu
115 120 125

Asn Ser His Ser Lys Ser Glu Ile Val Asp Met Leu Arg Lys His Thr
130 135 140

Tyr Asn Glu Glu Leu Glu Gln Ser Lys Arg Arg Arg Asn Gly Asn Gly
145 150 155 160

Asn Met Thr Arg Thr Leu Leu Thr Ser Gly Leu Ser Asn Asp Gly Val
165 170 175

Ser Thr Thr Gly Phe Arg Ser Ala Glu Ala Leu Phe Glu Lys Ala Val
180 185 190

Thr Pro Ser Asp Val Gly Lys Leu Asn Arg Leu Val Ile Pro Lys His
195 200 205

His Ala Glu Lys His Phe Pro Leu Pro Ser Ser Asn Val Ser Val Lys
210 215 220

Gly Val Leu Leu Asn Phe Glu Asp Val Asn Gly Lys Val Trp Arg Phe
225 230 235 240

Arg Tyr Ser Tyr Trp Asn Ser Ser Gln Ser Tyr Val Leu Thr Lys Gly
245 250 255

Trp Ser Arg Phe Val Lys Glu Lys Asn Leu Arg Ala Gly Asp Val Val
260 265 270

Ser Phe Ser Arg Ser Asn Gly Gln Asp Gln Gln Leu Tyr Ile Gly Trp
275 280 285

Lys Ser Arg Ser Gly Ser Asp Leu Asp Ala Gly Arg Val Leu Arg Leu
290 295 300

Phe Gly Val Asn Ile Ser Pro Glu Ser Ser Arg Asn Asp Val Val Gly
305 310 315 320

Asn Lys Arg Val Asn Asp Thr Glu Met Leu Ser Leu Val Cys Ser Lys
325 330 335

Lys Gln Arg Ile Phe His Ala Ser

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cttttttctt tcatcagtggt taaattcgga tccgggtcgg gtgggttttc ggtttttggt 240
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cggcggctgt gacggtggtt gtgtgtcgtc tctttttatc aatcaggagt ttcacacag 360
tttgatcaga gattcagcca aattcttgga tactaa atg gct ggt ttt gat gaa 414
Met Ala Gly Phe Asp Glu
1 5
aat gtt gct gtg atg gga gaa tgg gtg cct cgt agt cct agt ccc ggg 462
Asn Val Ala Val Met Gly Glu Trp Val Pro Arg Ser Pro Ser Pro Gly
10 15 20
aca ctt ttc tcc tct gct att gga gaa gag aag agc tgc aaa cgt gtt 510
Thr Leu Phe Ser Ser Ala Ile Gly Glu Glu Lys Ser Ser Lys Arg Val
25 30 35
ctt gaa aga gag tta tct ttg aat cat ggt caa gtt att ggt tta gaa 558
Leu Glu Arg Glu Leu Ser Leu Asn His Gly Gln Val Ile Gly Leu Glu
40 45 50
gaa gac act agt agt aat cat aac aag gat tct tca caa agc aat gtt 606
Glu Asp Thr Ser Ser Asn His Asn Lys Asp Ser Ser Gln Ser Asn Val
55 60 65 70
ttt cga ggt ggt ctc agt gaa aga att gct gca aga gct gga ttt aat 654
Phe Arg Gly Gly Leu Ser Glu Arg Ile Ala Ala Arg Ala Gly Phe Asn
75 80 85
gct cca agg ttg aac act gag aat atc cgc acc aac acc gac ttt tcc 702
Ala Pro Arg Leu Asn Thr Glu Asn Ile Arg Thr Asn Thr Asp Phe Ser
90 95 100
att gac tct aac ctt cga tct cct tgc tta acc atc tct tct cct ggc 750
Ile Asp Ser Asn Leu Arg Ser Pro Cys Leu Thr Ile Ser Ser Pro Gly
105 110 115
ctt agc cct gca aca ctc ttg gaa tct cct gtt ttc ctt tct aac cca 798
Leu Ser Pro Ala Thr Leu Leu Glu Ser Pro Val Phe Leu Ser Asn Pro
120 125 130
ttg gct caa cct tct cca act acc ggg aaa ttt cca ttt ctt cct ggt 846
Leu Ala Gln Pro Ser Pro Thr Thr Gly Lys Phe Pro Phe Leu Pro Gly

gtt aat ggt aat gca ttg tct tct gag aaa gcg aaa gac gag ttc ttt	894
Val Asn Gly Asn Ala Leu Ser Ser Glu Lys Ala Lys Asp Glu Phe Phe	
155 160 165	
gat gat att gga gca tca ttc agc ttc cat cct gtt tca aga tca tct	942
Asp Asp Ile Gly Ala Ser Phe Ser Phe His Pro Val Ser Arg Ser Ser	
170 175 180	
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Ser Ser Phe Phe Gln Gly Thr Thr Glu Met Met Ser Val Asp Tyr Gly	
185 190 195	
aac tac aac aat aga tct tct tct cat caa tcc gca gaa gaa gta aaa	1038
Asn Tyr Asn Asn Arg Ser Ser Ser His Gln Ser Ala Glu Glu Val Lys	
200 205 210	
cct ggc tct gaa aac ata gaa agc tcc aat ctt tat ggg att gaa act	1086
Pro Gly Ser Glu Asn Ile Glu Ser Ser Asn Leu Tyr Gly Ile Glu Thr	
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Asp Asn Gln Asn Gly Gln Asn Lys Thr Ser Asp Val Thr Thr Asn Thr	
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Ser Leu Glu Thr Val Asp His Gln Glu Glu Glu Glu Glu Arg Arg	
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Gly Asp Ser Met Ala Gly Gly Ala Pro Ala Glu Asp Gly Tyr Asn Trp	
265 270 275	
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Arg Lys Tyr Gly Gln Lys Leu Val Lys Gly Ser Glu Tyr Pro Arg Ser	
280 285 290	
tat tac aag tgc aca aac ccg aat tgt cag gtg aag aag aaa gtt gag	1326
Tyr Tyr Lys Cys Thr Asn Pro Asn Cys Gln Val Lys Lys Lys Val Glu	
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Arg Ser Arg Glu Gly His Ile Thr Glu Ile Ile Tyr Lys Gly Ala His	
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Asn His Leu Lys Pro Pro Pro Asn Arg Arg Ser Gly Met Gln Val Asp	
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gga act gaa caa gtt gaa caa caa caa cag aga gat tct gct gca	1470
Gly Thr Glu Gln Val Glu Gln Gln Gln Gln Arg Asp Ser Ala Ala	
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acg tgg gtt agt tgt aat aac act caa caa caa ggt gga agc aat gag	1518
Thr Trp Val Ser Cys Asn Asn Thr Gln Gln Gln Gly Gly Ser Asn Glu	
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tca gcc gca gtt tct cac cat tac cac aac ggt cat cac tca gag cgg Ser Ala Ala Val Ser His His Tyr His Asn Gly His Ser Glu Pro 570 575 580	2142
cca cgt ggg aga ttc gac aga caa gtc aca act aac aat cag tct cct Pro Arg Gly Arg Phe Asp Arg Gln Val Thr Thr Asn Asn Gln Ser Pro 585 590 595	2190

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Phe Ser Arg Pro Phe Ser Phe Gln Pro His Leu Gly Pro Pro Ser Gly
600 605 610

ttc tcc ttc ggt tta gga caa acc ggt ttg gtt aat ctt tca atg cct 2286
Phe Ser Phe Gly Leu Gly Gln Thr Gly Leu Val Asn Leu Ser Met Pro
615 620 625 630

ggt tta gcg tat ggt caa ggg aaa atg ccg ggt ttg cct cac ccg tat 2334
Gly Leu Ala Tyr Gly Gln Gly Lys Met Pro Gly Leu Pro His Pro Tyr
635 640 645

atg aca caa ccg gtt ggg atg agt gaa gca atg atg cag aga ggg atg 2382
Met Thr Gln Pro Val Gly Met Ser Glu Ala Met Met Gln Arg Gly Met
650 655 660

gaa cca aag gtt gaa ccg gtt tca gat tca gga caa tcg gta tat aac 2430
Glu Pro Lys Val Glu Pro Val Ser Asp Ser Gly Gln Ser Val Tyr Asn
665 670 675

cag atc atg agt aga tta cct cag att tga aatttactct tcttcttctt 2480
Gln Ile Met Ser Arg Leu Pro Gln Ile
680 685

ctttctgcatt tggctactcc ttataataac ttttaatttc tgcttcttct tcttctttca 2540

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Lys Ser Ser Lys Arg Val Leu Glu Arg Glu Leu Ser Leu Asn His Gly
35 40 45

Gln Val Ile Gly Leu Glu Glu Asp Thr Ser Ser Asn His Asn Lys Asp
50 55 60

Ser Ser Gln Ser Asn Val Phe Arg Gly Gly Leu Ser Glu Arg Ile Ala
65 70 75 80

Ala Arg Ala Gly Phe Asn Ala Pro Arg Leu Asn Thr Glu Asn Ile Arg
85 90 95

Thr Asn Thr Asp Phe Ser Ile Asp Ser Asn Leu Arg Ser Pro Cys Leu
 100 105 110

Thr Ile Ser Ser Pro Gly Leu Ser Pro Ala Thr Leu Leu Glu Ser Pro
 115 120 125

Val Phe Leu Ser Asn Pro Leu Ala Gln Pro Ser Pro Thr Thr Gly Lys
 130 135 140

Phe Pro Phe Leu Pro Gly Val Asn Gly Asn Ala Leu Ser Ser Glu Lys
 145 150 155 160

Ala Lys Asp Glu Phe Phe Asp Asp Ile Gly Ala Ser Phe Ser Phe His
 165 170 175

Pro Val Ser Arg Ser Ser Ser Ser Phe Phe Gln Gly Thr Thr Glu Met
 180 185 190

Met Ser Val Asp Tyr Gly Asn Tyr Asn Asn Arg Ser Ser Ser His Gln
 195 200 205

Ser Ala Glu Glu Val Lys Pro Gly Ser Glu Asn Ile Glu Ser Ser Asn
 210 215 220

Leu Tyr Gly Ile Glu Thr Asp Asn Gln Asn Gly Gln Asn Lys Thr Ser
 225 230 235 240

Asp Val Thr Thr Asn Thr Ser Leu Glu Thr Val Asp His Gln Glu Glu
 245 250 255

Glu Glu Glu Gln Arg Arg Gly Asp Ser Met Ala Gly Gly Ala Pro Ala
 260 265 270

Glu Asp Gly Tyr Asn Trp Arg Lys Tyr Gly Gln Lys Leu Val Lys Gly
 275 280 285

Ser Glu Tyr Pro Arg Ser Tyr Tyr Lys Cys Thr Asn Pro Asn Cys Gln
 290 295 300

Val Lys Lys Lys Val Glu Arg Ser Arg Glu Gly His Ile Thr Glu Ile
 305 310 315 320

Ile Tyr Lys Gly Ala His Asn His Leu Lys Pro Pro Pro Asn Arg Arg

325

330

335

Ser Gly Met Gln Val Asp Gly Thr Glu Gln Val Glu Gln Gln Gln Gln
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Gln Arg Asp Ser Ala Ala Thr Trp Val Ser Cys Asn Asn Thr Gln Gln
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Gln Gly Gly Ser Asn Glu Asn Asn Val Glu Glu Gly Ser Thr Arg Phe
 370 375 380

Glu Tyr Gly Asn Gln Ser Gly Ser Ile Gln Ala Gln Thr Gly Gly Gln
 385 390 395 400

Tyr Glu Ser Gly Asp Pro Val Val Val Val Asp Ala Ser Ser Thr Phe
 405 410 415

Ser Asn Asp Glu Asp Glu Asp Asp Arg Gly Thr His Gly Ser Val Ser
 420 425 430

Leu Gly Tyr Asp Gly Gly Gly Gly Gly Gly Gly Gly Glu Gly Asp Glu
 435 440 445

Ser Glu Ser Lys Arg Arg Lys Leu Glu Ala Phe Ala Ala Glu Met Ser
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Gly Ser Thr Arg Ala Ile Arg Glu Pro Arg Val Val Val Gln Thr Thr
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Ser Asp Val Asp Ile Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly
 485 490 495

Gln Lys Val Val Lys Gly Asn Pro Asn Pro Arg Ser Tyr Tyr Lys Cys
 500 505 510

Thr Ala Pro Gly Cys Thr Val Arg Lys His Val Glu Arg Ala Ser His
 515 520 525

Asp Leu Lys Ser Val Ile Thr Thr Tyr Glu Gly Lys His Asn His Asp
 530 535 540

Val Pro Ala Ala Arg Asn Ser Ser His Gly Gly Gly Asp Ser Gly
 545 550 555 560

Asn Gly Asn Ser Gly Gly Ser Ala Ala Val Ser His His Tyr His Asn
565 570 575

Gly His His Ser Glu Pro Pro Arg Gly Arg Phe Asp Arg Gln Val Thr
580 585 590

Thr Asn Asn Gln Ser Pro Phe Ser Arg Pro Phe Ser Phe Gln Pro His
595 600 605

Leu Gly Pro Pro Ser Gly Phe Ser Phe Gly Leu Gly Gln Thr Gly Leu
610 615 620

Val Asn Leu Ser Met Pro Gly Leu Ala Tyr Gly Gln Gly Lys Met Pro
625 630 635 640

Gly Leu Pro His Pro Tyr Met Thr Gln Pro Val Gly Met Ser Glu Ala
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Met Met Gln Arg Gly Met Glu Pro Lys Val Glu Pro Val Ser Asp Ser
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Phe Leu Ser Ile Ser Asp His Arg Ser Pro Val Ser Asp Ser Ser Glu
15 20 25

tgt tca cca aag tta gct tca agt tgt cca aag aaa cga gct ggg agg 148
Cys Ser Pro Lys Leu Ala Ser Ser Cys Pro Lys Lys Arg Ala Gly Arg
30 35 40

aag aag ttt cgt gag aca cgt cat ccg att tac aga gga gtt cgt cag 196
Lys Lys Phe Arg Glu Thr Arg His Pro Ile Tyr Arg Gly Val Arg Gln
45 50 55

agg aat tct ggt aaa tgg gtt tgt gaa gtt aga gag cct aat aag aaa 244
Arg Asn Ser Gly Lys Trp Val Cys Glu Val Arg Glu Pro Asn Lys Lys
60 65 70 75

tct agg att tgg tta ggt act ttt ccg acg gtt gaa atg gct gct cgt 292
 Ser Arg Ile Trp Leu Gly Thr Phe Pro Thr Val Glu Met Ala Ala Arg
 80 85 90
 gct cat gat gtt gct gct tta gct ctt cgt ggt cgc tct gct tgt ctc 340
 Ala His Asp Val Ala Ala Leu Ala Leu Arg Gly Arg Ser Ala Cys Leu
 95 100 105
 aat ttc gct gat tct gct tgg cgg ctt cgt att cct gag act act tgt 388
 Asn Phe Ala Asp Ser Ala Trp Arg Leu Arg Ile Pro Glu Thr Thr Cys
 110 115 120
 cct aag gag att cag aaa gct gcg tct gaa gct gca atg gcg ttt cag 436
 Pro Lys Glu Ile Gln Lys Ala Ala Ser Glu Ala Met Ala Phe Gln
 125 130 135
 aat gag act acg acg gag gga tct aaa act gcg gcg gag gca gag gag 484
 Asn Glu Thr Thr Thr Glu Gly Ser Lys Thr Ala Ala Glu Ala Glu Glu
 140 145 150 155
 gcg gca ggg gag ggg gtg agg gag ggg gag agg gcg gag gag cag 532
 Ala Ala Gly Glu Gly Val Arg Glu Gly Glu Arg Arg Ala Glu Glu Gln
 160 165 170
 aat ggt ggt gtg ttt tat atg gat gat gag gcg ctt ttg ggg atg ccc 580
 Asn Gly Gly Val Phe Tyr Met Asp Asp Glu Ala Leu Leu Gly Met Pro
 175 180 185
 aac ttt ttt gag aat atg gcg gag ggg atg ctt ttg ccg ccg ccg gaa 628
 Asn Phe Phe Glu Asn Met Ala Glu Gly Met Leu Leu Pro Pro Pro Glu
 190 195 200
 gtt ggc tgg aat cat aac gac ttt gac gga gtg ggt gac gtg toa ctc 676
 Val Gly Trp Asn His Asn Asp Phe Asp Gly Val Gly Asp Val Ser Leu
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 20 25 30

Ala Ser Ser Cys Pro Lys Lys Arg Ala Gly Arg Lys Lys Phe Arg Glu
 35 40 45

Thr Arg His Pro Ile Tyr Arg Gly Val Arg Gln Arg Asn Ser Gly Lys

50

55

60

Trp Val Cys Glu Val Arg Glu Pro Asn Lys Lys Ser Arg Ile Trp Leu
65 70 75 80

Gly Thr Phe Pro Thr Val Glu Met Ala Ala Arg Ala His Asp Val Ala
85 90 95

Ala Leu Ala Leu Arg Gly Arg Ser Ala Cys Leu Asn Phe Ala Asp Ser
100 105 110

Ala Trp Arg Leu Arg Ile Pro Glu Thr Thr Cys Pro Lys Glu Ile Gln
115 120 125

Lys Ala Ala Ser Glu Ala Ala Met Ala Phe Gln Asn Glu Thr Thr Thr
130 135 140

Glu Gly Ser Lys Thr Ala Ala Glu Ala Glu Glu Ala Ala Gly Glu Gly
145 150 155 160

Val Arg Glu Gly Glu Arg Arg Ala Glu Glu Gln Asn Gly Gly Val Phe
165 170 175

Tyr Met Asp Asp Glu Ala Leu Leu Gly Met Pro Asn Phe Phe Glu Asn
180 185 190

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195 200 205

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ttt ccc ggt tta gga aac gga tcc tat cta aat gat caa cct ttg tta 96
Phe Pro Gly Leu Gly Asn Gly Ser Tyr Leu Asn Asp Gln Pro Leu Leu
20 25 30

gat att gga tct gtt cct cct cct cta gac cca tat cct caa cag aat 144
Asp Ile Gly Ser Val Pro Pro Pro Leu Asp Pro Tyr Pro Gln Gln Asn

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cat gat gct tta tct ctt caa gca gct gag aag tct ctc tat gaa gct His Asp Ala Leu Ser Leu Gln Ala Ala Glu Lys Ser Leu Tyr Glu Ala 85 90 95			288
ctc ggc gag aag tac ccg gtt gat gat tct gat cag cct ctg act act Leu Gly Glu Lys Tyr Pro Val Asp Ser Ser Asp Gln Pro Leu Thr Thr 100 105 110			336
act act agc ctt gct caa ttg gtt agt agt cct ggt ggt tct tct tat Thr Thr Ser Leu Ala Gln Leu Val Ser Ser Pro Gly Gly Ser Ser Tyr 115 120 125			384
gct tca agc acc aca acc act tcc tct gat tca caa tgg agt ttt gat Ala Ser Ser Thr Thr Thr Thr Ser Ser Asp Ser Gln Trp Ser Phe Asp 130 135 140			432
tgt ttg gag aat aat agg cct tct tct tgg ttg cag aca ccg atc ccg Cys Leu Glu Asn Asn Arg Pro Ser Ser Trp Leu Gln Thr Pro Ile Pro 145 150 155 160			480
agt aac ttc att ttt cag tct aca tct act aga gcc agt agc ggt aac Ser Asn Phe Ile Phe Gln Ser Thr Ser Thr Arg Ala Ser Ser Gly Asn 165 170 175			528
gcg gtt ttc ggg tca agt ttt agc ggt gat ttg gtt tct aat atg ttt Ala Val Phe Gly Ser Ser Phe Ser Gly Asp Leu Val Ser Asn Met Phe 180 185 190			576
aat gat act gac ttg gcg tta caa ttc aag aaa ggg atg gag gaa gct Asn Asp Thr Asp Leu Ala Leu Gln Phe Lys Lys Gly Met Glu Glu Ala 195 200 205			624
agt aaa ttc ctt cct aag agc tct cag ttg gtt ata gat aac tct gtt Ser Lys Phe Leu Pro Lys Ser Ser Gln Leu Val Ile Asp Asn Ser Val 210 215 220			672
cct aac aga tta acc gga aag aag agc cat tgg cgc gaa gaa gaa cat Pro Asn Arg Leu Thr Gly Lys Lys Ser His Trp Arg Glu Glu Glu His 225 230 235 240			720
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aca cgg gaa gat cca atg agg gtt atg ttt gag aaa gag ttc tat ggg Thr Arg Glu Asp Pro Met Arg Val Met Phe Glu Lys Glu Phe Tyr Gly 595 600 605	1824
cgg gag atc atg aac gtg gtg gcg tgt gag ggg acg gag aga gtg gag Arg Glu Ile Met Asn Val Val Ala Cys Glu Gly Thr Glu Arg Val Glu 610 615 620	1872
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atg gtg gaa agt gga tac aaa ccc aaa gag ttt gat gtt gat caa gat Met Val Glu Ser Gly Tyr Lys Pro Lys Glu Phe Asp Val Asp Gln Asp 660 665 670	2016
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Pro Pro Pro Ser Asp Thr Leu Leu Lys Tyr Val Ser Glu Ile Leu Met	
740 745 750	
gaa gag agt aat gga gat tat aag caa tct atg ttc tat gat tca ttg	2304
Glu Glu Ser Asn Gly Asp Tyr Lys Gln Ser Met Phe Tyr Asp Ser Leu	
755 760 765	
gct tta cga aaa act gaa gaa atg ttg cag caa gtc att act gat tct	2352
Ala Leu Arg Lys Thr Glu Glu Met Leu Gln Gln Val Ile Thr Asp Ser	
770 775 780	
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Gln Asn Gln Ser Phe Ser Pro Ala Asp Ser Leu Ile Thr Asn Ser Trp	
785 790 795 800	
gat gca agc gga agc atc gat gaa tcg gct tat tcg gct gat ccg caa	2448
Asp Ala Ser Gly Ser Ile Asp Glu Ser Ala Tyr Ser Ala Asp Pro Gln	
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cct gtg aat gaa att atg gtt aag agt atg ttt agt gat gca gaa tca	2496
Pro Val Asn Glu Ile Met Val Lys Ser Met Phe Ser Asp Ala Glu Ser	
820 825 830	
gct tta cag ttt aag aaa ggg gtt gaa gaa gct agt aaa ttc ctt ccc	2544
Ala Leu Gln Phe Lys Lys Gly Val Glu Glu Ala Ser Lys Phe Leu Pro	
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Asn Ser Asp Gln Trp Val Ile Asn Leu Asp Ile Glu Arg Ser Glu Arg	
850 855 860	
cgc gat tcg gtt aaa gaa gag atg gga ttg gat cag ttg aga gtt aag	2640
Arg Asp Ser Val Lys Glu Glu Met Gly Leu Asp Gln Leu Arg Val Lys	
865 870 875 880	
aag aat cat gaa agg gat ttt gag gaa gtt agg agt agt aag caa ttt	2688
Lys Asn His Glu Arg Asp Phe Glu Glu Val Arg Ser Ser Lys Gln Phe	
885 890 895	
gct agt aat gta gaa gat agt aag gtt aca gat atg ttt gat aag gtt	2736
Ala Ser Asn Val Glu Asp Ser Lys Val Thr Asp Met Phe Asp Lys Val	
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Ile Gln Ala Ile Arg Ser Ser Lys Asn Ile Gly Glu Lys Gly Lys Lys	
930 935 940	
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Lys Lys Lys Lys Lys Ser Gln Val Val Asp Phe Arg Thr Leu Leu Thr	

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Phe Leu Leu Gln Ile Arg Gln Gln Ser Ser Pro Leu Gly Asp Ala Gly	980	985	990	
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Gln Arg Leu Ala His Cys Phe Ala Asn Ala Leu Glu Ala Arg Leu Gln	995	1000	1005	
gga agt acc ggt cct atg atc cag act tat tac aat gct tta acc				3069
Gly Ser Thr Gly Pro Met Ile Gln Thr Tyr Tyr Asn Ala Leu Thr	1010	1015	1020	
tcg tcg ttg aag gat act gct gcg gat aca att aga gcg tat cga				3114
Ser Ser Leu Lys Asp Thr Ala Ala Asp Thr Ile Arg Ala Tyr Arg	1025	1030	1035	
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Val Tyr Leu Ser Ser Ser Pro Phe Val Thr Leu Met Tyr Phe Phe	1040	1045	1050	
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Ser Ile Trp Met Ile Leu Asp Val Ala Lys Asp Ala Pro Val Leu	1055	1060	1065	
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Phe Ile Gln Ser Ile Ser Asp Arg Lys Asp Val Pro Arg Lys Leu	1085	1090	1095	
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Arg Ile Thr Gly Ile Glu Leu Pro Gln Cys Gly Phe Arg Pro Ala	1100	1105	1110	
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Glu Arg Ile Glu Glu Thr Gly Arg Arg Leu Ala Glu Tyr Cys Lys	1115	1120	1125	
cgg ttt aat gtt ccg ttt gag tac aaa gcc att gcg tct cag aac				3429
Arg Phe Asn Val Pro Phe Glu Tyr Lys Ala Ile Ala Ser Gln Asn	1130	1135	1140	
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Trp Glu Thr Ile Arg Ile Glu Asp Leu Asp Ile Arg Pro Asn Glu	1145	1150	1155	
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Val Leu Ala Val Asn Ala Gly Leu Arg Leu Lys Asn Leu Gln Asp	1160	1165	1170	

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Leu Ile Arg Asn Met Asn Pro Asp Val Phe Ile His Ala Ile Val	
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Asn Gly Ser Phe Asn Ala Pro Phe Phe Ile Ser Arg Phe Lys Glu	
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Ala Val Tyr His Tyr Ser Ala Leu Phe Asp Met Phe Asp Ser Thr	
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Leu Pro Arg Asp Asn Lys Glu Arg Ile Arg Phe Glu Arg Glu Phe	
1235 1240 1245	
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Tyr Gly Arg Glu Ala Met Asn Val Ile Ala Cys Glu Glu Ala Asp	
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Arg Val Glu Arg Pro Glu Thr Tyr Arg Gln Trp Gln Val Arg Met	
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1280 1285 1290	
gag ttg ttt aga gga aag ctg aag aaa tgg cgt tac cat aaa gac	3924
Glu Leu Phe Arg Gly Lys Leu Lys Lys Trp Arg Tyr His Lys Asp	
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Phe Val Val Asp Glu Asn Ser Lys Trp Leu Leu Gln Gly Trp Lys	
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35

40

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Ser Gln Val Leu Met Glu Glu Asp Met Glu Asp Lys Pro Cys Met Phe
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Leu Gly Glu Lys Tyr Pro Val Asp Asp Ser Asp Gln Pro Leu Thr Thr
100 105 110

Thr Thr Ser Leu Ala Gln Leu Val Ser Ser Pro Gly Gly Ser Ser Tyr
115 120 125

Ala Ser Ser Thr Thr Thr Thr Ser Ser Asp Ser Gln Trp Ser Phe Asp
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Cys Leu Glu Asn Asn Arg Pro Ser Ser Trp Leu Gln Thr Pro Ile Pro
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Ser Asn Phe Ile Phe Gln Ser Thr Ser Thr Arg Ala Ser Ser Gly Asn
165 170 175

Ala Val Phe Gly Ser Ser Phe Ser Gly Asp Leu Val Ser Asn Met Phe
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Ser Lys Phe Leu Pro Lys Ser Ser Gln Leu Val Ile Asp Asn Ser Val
210 215 220

Pro Asn Arg Leu Thr Gly Lys Lys Ser His Trp Arg Glu Glu Glu His
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245 250 255

Thr Asp Glu Leu Thr Asp Met Phe Asp Asn Ile Leu Ile Phe Gly Glu
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Ala Lys Glu Gln Pro Val Cys Ile Leu Asn Glu Ser Phe Pro Lys Glu
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Met Leu Val Ser Cys Ala Gln Ala Val Ser Ile Asn Asp Arg Arg Thr
325 330 335

Ala Asp Glu Leu Leu Ser Arg Ile Arg Gln His Ser Ser Ser Tyr Gly
340 345 350

Asp Gly Thr Glu Arg Leu Ala His Tyr Phe Ala Asn Ser Leu Glu Ala
355 360 365

Arg Leu Ala Gly Ile Gly Thr Gln Val Tyr Thr Ala Leu Ser Ser Lys
370 375 380

Lys Thr Ser Thr Ser Asp Met Leu Lys Ala Tyr Gln Thr Tyr Ile Ser
385 390 395 400

Val Cys Pro Phe Lys Lys Ile Ala Ile Ile Phe Ala Asn His Ser Ile
405 410 415

Met Arg Leu Ala Ser Ser Ala Asn Ala Lys Thr Ile His Ile Ile Asp
420 425 430

Phe Gly Ile Ser Asp Gly Phe Gln Trp Pro Ser Leu Ile His Arg Leu
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Ala Trp Arg Arg Gly Ser Ser Cys Lys Leu Arg Ile Thr Gly Ile Glu
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Leu Pro Gln Arg Gly Phe Arg Pro Ala Glu Gly Val Ile Glu Thr Gly
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Arg Arg Leu Ala Lys Tyr Cys Gln Lys Phe Asn Ile Pro Phe Glu Tyr
485 490 495

Asn Ala Ile Ala Gln Lys Trp Glu Ser Ile Lys Leu Glu Asp Leu Lys
500 505 510

Leu Lys Glu Gly Glu Phe Val Ala Val Asn Ser Leu Phe Arg Phe Arg
515 520 525

Asn Leu Leu Asp Glu Thr Val Ala Val His Ser Pro Arg Asp Thr Val
530 535 540

Leu Lys Leu Ile Arg Lys Ile Lys Pro Asp Val Phe Ile Pro Gly Ile
545 550 555 560

Leu Ser Gly Ser Tyr Asn Ala Pro Phe Phe Val Thr Arg Phe Arg Glu
565 570 575

Val Leu Phe His Tyr Ser Ser Leu Phe Asp Met Cys Asp Thr Asn Leu
580 585 590

Thr Arg Glu Asp Pro Met Arg Val Met Phe Glu Lys Glu Phe Tyr Gly
595 600 605

Arg Glu Ile Met Asn Val Val Ala Cys Glu Gly Thr Glu Arg Val Glu
610 615 620

Arg Pro Glu Ser Tyr Lys Gln Trp Gln Ala Arg Ala Met Arg Ala Gly
625 630 635 640

Phe Arg Gln Ile Pro Leu Glu Lys Glu Leu Val Gln Lys Leu Lys Leu
645 650 655

Met Val Glu Ser Gly Tyr Lys Pro Lys Glu Phe Asp Val Asp Gln Asp
660 665 670

Cys His Trp Leu Leu Gln Gly Trp Lys Gly Arg Ile Val Tyr Gly Ser
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Ser Ile Trp Val Pro Phe Phe Phe Tyr Val Gly Arg Ala Thr Arg Val
690 695 700

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Gln Asn Gln Ser Phe Ser Pro Ala Asp Ser Leu Ile Thr Asn Ser Trp
785 790 795 800

Asp Ala Ser Gly Ser Ile Asp Glu Ser Ala Tyr Ser Ala Asp Pro Gln
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Pro Val Asn Glu Ile Met Val Lys Ser Met Phe Ser Asp Ala Glu Ser
820 825 830

Ala Leu Gln Phe Lys Lys Gly Val Glu Glu Ala Ser Lys Phe Leu Pro
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Arg Asp Ser Val Lys Glu Glu Met Gly Leu Asp Gln Leu Arg Val Lys
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Lys Asn His Glu Arg Asp Phe Glu Glu Val Arg Ser Ser Lys Gln Phe
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Ala Ser Asn Val Glu Asp Ser Lys Val Thr Asp Met Phe Asp Lys Val
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Leu Leu Leu Asp Gly Glu Cys Asp Pro Gln Thr Leu Leu Asp Ser Glu
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Ile Gln Ala Ile Arg Ser Ser Lys Asn Ile Gly Glu Lys Gly Lys Lys
930 935 940

Lys Lys Lys Lys Lys Ser Gln Val Val Asp Phe Arg Thr Leu Leu Thr

945

950

955

960

His Cys Ala Gln Ala Ile Ser Thr Gly Asp Lys Thr Thr Ala Leu Glu
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Phe Leu Leu Gln Ile Arg Gln Gln Ser Ser Pro Leu Gly Asp Ala Gly
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Gln Arg Leu Ala His Cys Phe Ala Asn Ala Leu Glu Ala Arg Leu Gln
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Ser Ser Leu Lys Asp Thr Ala Ala Asp Thr Ile Arg Ala Tyr Arg
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Val Tyr Leu Ser Ser Ser Pro Phe Val Thr Leu Met Tyr Phe Phe
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His Ile Val Asp Phe Gly Ile Leu Tyr Gly Phe Gln Trp Pro Met
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Glu Arg Ile Glu Glu Thr Gly Arg Arg Leu Ala Glu Tyr Cys Lys
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Arg Phe Asn Val Pro Phe Glu Tyr Lys Ala Ile Ala Ser Gln Asn
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Val Leu Ala Val Asn Ala Gly Leu Arg Leu Lys Asn Leu Gln Asp
 1160 1165 1170

Glu Thr Gly Ser Glu Glu Asn Cys Pro Arg Asp Ala Val Leu Lys
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Leu Ile Arg Asn Met Asn Pro Asp Val Phe Ile His Ala Ile Val
1190 1195 1200

Asn Gly Ser Phe Asn Ala Pro Phe Phe Ile Ser Arg Phe Lys Glu
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Ala Val Tyr His Tyr Ser Ala Leu Phe Asp Met Phe Asp Ser Thr
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Pro Val Val Pro Ser Pro Cys Ser Gly Glu Ser Asp Ala Gly Ser Val	
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Ser Asn Ala Thr Asn His Asn Arg Asn Lys Leu Asn Arg Ser Val Leu	
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Gln Val Thr Asp Asp Arg Lys Arg Lys Arg Met Glu Ser Asn Arg Glu	
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Ser Ala Lys Arg Ser Arg Met Arg Lys Gln Arg His Ile Asp Asn Leu	
140 145 150 155	
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Arg Leu Arg Ile Val Leu Tyr Asn Ile Ala Leu Met Cys Thr Asp Asn	
175 180 185	
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Asn Gln Leu Leu Ser Glu Gln Glu Ile Leu Arg Arg Arg Phe Leu Glu	
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Met Arg Gln Ile Leu Ile Phe Arg Gln Leu Gln Leu Asn Pro Ser Leu	
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Ile Ile Asn His His His Met Ile	
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Cys Ser Asp Leu Phe Ser Thr Ile His Leu Glu Pro Val Val Pro Ser	35	40	45
Pro Cys Ser Gly Glu Ser Asp Ala Gly Ser Val Lys Ile Asn Thr Asp	50	55	60
Phe Asn Gly Phe Asp Glu Ser Cys Ile Gly Ser Ile Lys Thr Asn Ser	65	70	75
Gly Ser Asp Asp Ser Asn Leu Phe His Gly Val Pro Ser Pro Gln Ser	85	90	95
Asp Glu Leu Asp Ser Lys Asn Thr Lys Ile Arg Ser Asn Ala Thr Asn	100	105	110
His Asn Arg Asn Lys Leu Asn Arg Ser Val Leu Gln Val Thr Asp Asp	115	120	125
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Arg Met Arg Lys Gln Arg His Ile Asp Asn Leu Lys Asp Glu Ala Asn	145	150	155
Arg Leu Gly Leu Glu Asn Arg Glu Leu Ala Asn Arg Leu Arg Ile Val	165	170	175
Leu Tyr Asn Ile Ala Leu Met Cys Thr Asp Asn Asn Gln Leu Leu Ser	180	185	190
Glu Gln Glu Ile Leu Arg Arg Arg Phe Leu Glu Met Arg Gln Ile Leu	195	200	205
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5 10 15

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Gly Glu Arg Glu Glu Asn Glu Gly Ser Trp Gly Arg Asn Gln Glu
20 25 30

gat ggt tct tct cag ttt aag cct atg ctt gaa ggt gat tgg ttt agt 443
Asp Gly Ser Ser Gln Phe Lys Pro Met Leu Glu Gly Asp Trp Phe Ser
35 40 45

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Ser Asn Gln Pro His Pro Gln Asp Leu Gln Met Leu Gln Asn Gln Pro
50 55 60 65

gat ttc aga tac ttt ggt ggt ttt cct ttt aac cct aat gat aat ctt 539
Asp Phe Arg Tyr Phe Gly Gly Phe Pro Phe Asn Pro Asn Asp Asn Leu
70 75 80

ctt ctt caa cac tct att gat tct tct tct tgt tct cct tct caa 587
Leu Leu Gln His Ser Ile Asp Ser Ser Ser Ser Cys Ser Pro Ser Gln
85 90 95

gct ttt agt ctt gac cct tct cag caa aat cag ttc ttg tca act aac 635
Ala Phe Ser Leu Asp Pro Ser Gln Gln Phe Leu Ser Thr Asn
100 105 110

aac aac aag ggt tgt ctt ctc aat gtt cct tct tct gca aac cct ttt 683
Asn Asn Lys Gly Cys Leu Leu Asn Val Pro Ser Ser Ala Asn Pro Phe
115 120 125

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Asp Asn Ala Phe Glu Phe Gly Ser Glu Ser Gly Phe Leu Asn Gln Ile
130 135 140 145

cat gct cct att tcg atg ggg ttt ggt tct ttg aca caa ttg ggg aac 779
His Ala Pro Ile Ser Met Gly Phe Gly Ser Leu Thr Gln Leu Gly Asn
150 155 160

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Ala Pro Glu Ser Asn Asn Asn Asn Thr Met Leu Cys Gly Gly Phe Thr	
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Ala Pro Leu Glu Leu Glu Gly Phe Gly Ser Pro Ala Asn Gly Gly Phe	
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Val Gly Asn Arg Ala Lys Val Leu Lys Pro Leu Glu Val Leu Ala Ser	
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Ser Gly Ala Gln Pro Thr Leu Phe Gln Lys Arg Ala Ala Met Arg Gln	
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Phe Ser Asp Asp Gly Asp Met Asp Glu Thr Gly Ile Glu Val Ser Gly	
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Leu Asn Tyr Glu Ser Asp Glu Ile Asn Glu Ser Gly Lys Ala Ala Glu	
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Ser Val Gln Ile Gly Gly Gly Lys Gly Lys Lys Gly Met Pro	
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Ala Lys Asn Leu Met Ala Glu Arg Arg Arg Lys Lys Leu Asn Asp	
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Arg Ala Ser Ile Leu Gly Asp Ala Ile Asp Tyr Leu Lys Glu Leu Leu	
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470 475 480

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Ala Val Leu Phe Asp Thr Ala Gly Tyr Ala Gly Met Ile
485 490

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35 40 45

Ser Ser Asn Gln Pro His Pro Gln Asp Leu Gln Met Leu Gln Asn Gln
50 55 60

Pro Asp Phe Arg Tyr Phe Gly Gly Phe Pro Phe Asn Pro Asn Asp Asn
65 70 75 80

Leu Leu Leu Gln His Ser Ile Asp Ser Ser Ser Cys Ser Pro Ser
85 90 95

Gln Ala Phe Ser Leu Asp Pro Ser Gln Gln Asn Gln Phe Leu Ser Thr
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Asn Asn Asn Lys Gly Cys Leu Leu Asn Val Pro Ser Ser Ala Asn Pro
115 120 125

Phe Asp Asn Ala Phe Glu Phe Gly Ser Glu Ser Gly Phe Leu Asn Gln
130 135 140

Ile His Ala Pro Ile Ser Met Gly Phe Gly Ser Leu Thr Gln Leu Gly
145 150 155 160

Asn Arg Asp Leu Ser Ser Val Pro Asp Phe Leu Ser Ala Arg Ser Leu
165 170 175

Leu Ala Pro Glu Ser Asn Asn Asn Asn Thr Met Leu Cys Gly Gly Phe
180 185 190

Thr Ala Pro Leu Glu Leu Glu Gly Phe Gly Ser Pro Ala Asn Gly Gly
195 200 205

Phe Val Gly Asn Arg Ala Lys Val Leu Lys Pro Leu Glu Val Leu Ala
210 215 220

Ser Ser Gly Ala Gln Pro Thr Leu Phe Gln Lys Arg Ala Ala Met Arg
225 230 235 240

Gln Ser Ser Gly Ser Lys Met Gly Asn Ser Glu Ser Ser Gly Met Arg
245 250 255

Arg Phe Ser Asp Asp Gly Asp Met Asp Glu Thr Gly Ile Glu Val Ser
260 265 270

Gly Leu Asn Tyr Glu Ser Asp Glu Ile Asn Glu Ser Gly Lys Ala Ala
275 280 285

Glu Ser Val Gln Ile Gly Gly Gly Gly Lys Gly Lys Lys Gly Met

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Pro Ala Lys Asn Leu Met Ala Glu Arg Arg Arg Arg Lys Lys Leu Asn
305 310 315 320

Asp Arg Leu Tyr Met Leu Arg Ser Val Val Pro Lys Ile Ser Lys Met
325 330 335

Asp Arg Ala Ser Ile Leu Gly Asp Ala Ile Asp Tyr Leu Lys Glu Leu
340 345 350

Leu Gln Arg Ile Asn Asp Leu His Asn Glu Leu Glu Ser Thr Pro Pro
355 360 365

Gly Ser Leu Pro Pro Thr Ser Ser Ser Phe His Pro Leu Thr Pro Thr
370 375 380

Pro Gln Thr Leu Ser Cys Arg Val Lys Glu Glu Leu Cys Pro Ser Ser
385 390 395 400

Leu Pro Ser Pro Lys Gly Gln Gln Ala Arg Val Glu Val Arg Leu Arg
405 410 415

Glu Gly Arg Ala Val Asn Ile His Met Phe Cys Gly Arg Arg Pro Gly
420 425 430

Leu Leu Leu Ala Thr Met Lys Ala Leu Asp Asn Leu Gly Leu Asp Val
435 440 445

Gln Gln Ala Val Ile Ser Cys Phe Asn Gly Phe Ala Leu Asp Val Phe
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Arg Ala Glu Gln Cys Gln Glu Gly Gln Glu Ile Leu Pro Asp Gln Ile
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ctcatccgcc attttcggtg actttttgaa gcattttctg aattgacttt gttcttcaca	180
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gtctttgagt gatacttctg gggaacaaa atg gct gca act gca ata gag cca	413
Met Ala Ala Thr Ala Ile Glu Pro	
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tct tca tct ata agt ttc aca tct tct cac tta tca aac cct tct cct	461
Ser Ser Ser Ile Ser Phe Thr Ser Ser His Leu Ser Asn Pro Ser Pro	
10 15 20	
gtt gtt act act tat cac tca gct gct aat ctt gaa gag ctc agc tct	509
Val Val Thr Thr Tyr His Ser Ala Ala Asn Leu Glu Glu Leu Ser Ser	
25 30 35 40	
aac ttg gag cag ctt ctc act aat cca gat tgc gat tac act gac gca	557
Asn Leu Glu Gln Leu Thr Asn Pro Asp Cys Asp Tyr Thr Asp Ala	
45 50 55	
gag atc atc att gaa gaa gaa gct aac cct cgg aag ctt cgt aac tat	605
Glu Ile Ile Ile Glu Glu Glu Ala Asn Pro Arg Lys Leu Arg Asn Tyr	
60 65 70	
gtt gag aag tca cta gta gag aat gtt ctt cct atc ctc tta gtt gcg	653
Val Glu Lys Ser Leu Val Glu Asn Val Leu Pro Ile Leu Leu Val Ala	
75 80 85	
ttt cat tgt gat ttg aca cag ctt ctt gat caa tgc att gag aga gtg	701
Phe His Cys Asp Leu Thr Gln Leu Leu Asp Gln Cys Ile Glu Arg Val	
90 95 100	
gcg aga tca gac tta gac aga ttc tgt atc gaa aag gag ctt cct tta	749
Ala Arg Ser Asp Leu Asp Arg Phe Cys Ile Glu Lys Glu Leu Pro Leu	
105 110 115 120	
gaa gta ttg gaa aaa atc aaa cag ctt cga gtt aag tcg gtg aac ata	797
Glu Val Leu Glu Lys Ile Lys Gln Leu Arg Val Lys Ser Val Asn Ile	
125 130 135	
ccc gag gtg gag gat aaa tcg ata gag aga aca ggg aaa gta ctc aag	845
Pro Glu Val Glu Asp Lys Ser Ile Glu Arg Thr Gly Lys Val Leu Lys	
140 145 150	
gca ttg gat tca gat gat gta gaa ctc gtg aag ctt ctt ttg act gag	893
Ala Leu Asp Ser Asp Asp Val Glu Leu Val Lys Leu Leu Leu Thr Glu	
155 160 165	
tca gat ata act cta gac caa gcc aat ggt cta cat tat gca gtg gca	941
Ser Asp Ile Thr Leu Asp Gln Ala Asn Gly Leu His Tyr Ala Val Ala	
170 175 180	

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gct atg cgt aga gag cca aca att atc ata cca ctt att caa aaa gga Ala Met Arg Arg Glu Pro Thr Ile Ile Ile Pro Leu Ile Gln Lys Gly 220 225 230	1085
gct aat gct tca gat ttc acg ttt gat gga cgc agt gcg gta aat ata Ala Asn Ala Ser Asp Phe Thr Phe Asp Gly Arg Ser Ala Val Asn Ile 235 240 245	1133
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aaa gaa cct agt aaa tac cgc tta tgc atc gat atc ttg gaa agg gaa Lys Glu Pro Ser Lys Tyr Arg Leu Cys Ile Asp Ile Leu Glu Arg Glu 265 270 275 280	1229
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tcg atg ccc gag gat ctc caa atg agg ttg tta tac tta gaa aag cga Ser Met Pro Glu Asp Leu Gln Met Arg Leu Leu Tyr Leu Glu Lys Arg 300 305 310	1325
gtg gga ctt gct cag ttg ttc ttc cca gca gaa gcc aat gtg gct atg Val Gly Leu Ala Gln Leu Phe Phe Pro Ala Glu Ala Asn Val Ala Met 315 320 325	1373
gac gtt gct aat gtt gaa ggg aca agc gag tgc aca ggt ctt cta act Asp Val Ala Asn Val Glu Gly Thr Ser Glu Cys Thr Gly Leu Leu Thr 330 335 340	1421
cca cct cca tca aat gat aca act gaa aac ttg ggt aaa gtc gat tta Pro Pro Pro Ser Asn Asp Thr Thr Glu Asn Leu Gly Lys Val Asp Leu 345 350 355 360	1469
aat gaa acg cct tat gtg caa acg aaa aga atg ctt aca cgt atg aaa Asn Glu Thr Pro Tyr Val Gln Thr Lys Arg Met Leu Thr Arg Met Lys 365 370 375	1517
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tat gag gtt ctg gat aag tac atg gat cag tat atg gac gaa gaa atc Tyr Glu Val Leu Asp Lys Tyr Met Asp Gln Tyr Met Asp Glu Glu Ile 395 400 405	1613

cct gat atg tcg tat ccc gag aaa ggc act gtg aaa gag aga aga cag 1661
Pro Asp Met Ser Tyr Pro Glu Lys Gly Thr Val Lys Glu Arg Arg Gln
410 415 420

aag agg atg aga tat aac gag ctg aag aac gac gtt aaa aaa gca tat 1709
Lys Arg Met Arg Tyr Asn Glu Leu Lys Asn Asp Val Lys Lys Ala Tyr
425 430 435 440

agc aaa gac aaa gtc ggc cgg tct tgt ctt tct tct tca tca cca gct 1757
Ser Lys Asp Lys Val Ala Arg Ser Cys Leu Ser Ser Ser Ser Pro Ala
445 450 455

tct tct ctt aga gaa gcc tta gag aat cca aca tga tctgtccca 1803
Ser Ser Leu Arg Glu Ala Leu Glu Asn Pro Thr
460 465

gataagtaat gctactagag atagtccctt ggaagaaatt agctatttta taggttttgg 1863

tttagaaaac agtggagatc ccatttttgtt attcaggttt attacatggt ttaggtttga 1923

ttttgtatta aaggagatgg atttttgaaa tgtataaagc aaaaccttct ctttttgctt 1983

tgcttcttctc tttaaaaaaa aaattgtaat atatggaagt gaaatcgaag caacgattga 2043

gcaaaaaaaaa a 2054

<210> 28 <211> 467 <212> PRT <213> Arabidopsis thaliana <400> 28

Met Ala Ala Thr Ala Ile Glu Pro Ser Ser Ser Ile Ser Phe Thr Ser
1 5 10 15

Ser His Leu Ser Asn Pro Ser Pro Val Val Thr Thr Tyr His Ser Ala
20 25 30

Ala Asn Leu Glu Glu Leu Ser Ser Asn Leu Glu Gln Leu Leu Thr Asn
35 40 45

Pro Asp Cys Asp Tyr Thr Asp Ala Glu Ile Ile Ile Glu Glu Glu Ala
50 55 60

Asn Pro Arg Lys Leu Arg Asn Tyr Val Glu Lys Ser Leu Val Glu Asn
65 70 75 80

Val Leu Pro Ile Leu Leu Val Ala Phe His Cys Asp Leu Thr Gln Leu
85 90 95

Leu Asp Gln Cys Ile Glu Arg Val Ala Arg Ser Asp Leu Asp Arg Phe
100 105 110

Cys Ile Glu Lys Glu Leu Pro Leu Glu Val Leu Glu Lys Ile Lys Gln
115 120 125

Leu Arg Val Lys Ser Val Asn Ile Pro Glu Val Glu Asp Lys Ser Ile
130 135 140

Glu Arg Thr Gly Lys Val Leu Lys Ala Leu Asp Ser Asp Asp Val Glu
145 150 155 160

Leu Val Lys Leu Leu Leu Thr Glu Ser Asp Ile Thr Leu Asp Gln Ala
165 170 175

Asn Gly Leu His Tyr Ala Val Ala Tyr Ser Asp Pro Lys Val Val Thr
180 185 190

Gln Val Leu Asp Leu Asp Met Ala Asp Val Asn Phe Arg Asn Ser Arg
195 200 205

Gly Tyr Thr Val Leu His Ile Ala Ala Met Arg Arg Glu Pro Thr Ile
210 215 220

Ile Ile Pro Leu Ile Gln Lys Gly Ala Asn Ala Ser Asp Phe Thr Phe
225 230 235 240

Asp Gly Arg Ser Ala Val Asn Ile Cys Arg Arg Leu Thr Arg Pro Lys
245 250 255

Asp Tyr His Thr Lys Thr Ser Arg Lys Glu Pro Ser Lys Tyr Arg Leu
260 265 270

Cys Ile Asp Ile Leu Glu Arg Glu Ile Arg Arg Asn Pro Leu Val Ser
275 280 285

Gly Asp Thr Pro Thr Cys Ser His Ser Met Pro Glu Asp Leu Gln Met
290 295 300

Arg Leu Leu Tyr Leu Glu Lys Arg Val Gly Leu Ala Gln Leu Phe Phe
305 310 315 320

Pro Ala Glu Ala Asn Val Ala Met Asp Val Ala Asn Val Glu Gly Thr
325 330 335

Ser Glu Cys Thr Gly Leu Leu Thr Pro Pro Pro Ser Asn Asp Thr Thr

340

345

350

Glu Asn Leu Gly Lys Val Asp Leu Asn Glu Thr Pro Tyr Val Gln Thr
355 360 365

Lys Arg Met Leu Thr Arg Met Lys Ala Leu Met Lys Thr Val Glu Thr
370 375 380

Gly Arg Arg Tyr Phe Pro Ser Cys Tyr Glu Val Leu Asp Lys Tyr Met
385 390 395 400

Asp Gln Tyr Met Asp Glu Glu Ile Pro Asp Met Ser Tyr Pro Glu Lys
405 410 415

Gly Thr Val Lys Glu Arg Arg Gln Lys Arg Met Arg Tyr Asn Glu Leu
420 425 430

Lys Asn Asp Val Lys Lys Ala Tyr Ser Lys Asp Lys Val Ala Arg Ser
435 440 445

Cys Leu Ser Ser Ser Ser Pro Ala Ser Ser Leu Arg Glu Ala Leu Glu
450 455 460

Asn Pro Thr
465

<210> 29 <211> 1011 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (57)..(983) <223> G1363

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Met
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caa gag ttc cat agt agc aaa gat tca ttg cct tgt cct gca act tct 107
Gln Glu Phe His Ser Ser Lys Asp Ser Leu Pro Cys Pro Ala Thr Ser
5 10 15

tgg gat aac tct gtc ttc acc aac tca aat gtc caa gga tca tca tcc 155
Trp Asp Asn Ser Val Phe Thr Asn Ser Asn Val Gln Gly Ser Ser Ser
20 25 30

ttg acc gat aac aac act tta agc ttg aca atg gag atg aaa caa act 203
Leu Thr Asp Asn Asn Thr Leu Ser Leu Thr Met Glu Met Lys Gln Thr
35 40 45

ggt ttt caa atg cag cac tat gat tcc tcc tct act caa tcc act gga 251
Gly Phe Gln Met Gln His Tyr Asp Ser Ser Ser Thr Gln Ser Thr Gly

50	55	60	65	
gga gaa tca tat agt gaa gtt gct agc tta agt gaa cct act aat cgt				299
Gly Glu Ser Tyr	Ser Glu Val Ala	Ser Leu Ser	Glu Pro Thr Asn Arg	
	70	75	80	
tat ggc cac aac att gtt gtc act cat ctc tca ggt tac aaa gaa aac				347
Tyr Gly His	Asn Ile Val Val Thr	His Leu Ser	Gly Tyr Lys Glu Asn	
	85	90	95	
ccg gaa aat cct att gga agt cat tcg ata tca aag gtg tct caa gat				395
Pro Glu Asn Pro	Ile Gly Ser	His Ser Ile Ser	Lys Val Ser Gln Asp	
	100	105	110	
tca gtg gtt ctt cct att gag gcg gct tct tgg cct tta cac ggc aat				443
Ser Val Val Leu Pro	Ile Glu Ala Ala Ser	Trp Pro Leu His	Gly Asn	
	115	120	125	
gta acg cca cat ttc aat ggt ttc ttg tct ttt cct tat gca tca caa				491
Val Thr Pro His	Phe Asn Gly Phe	Leu Ser Phe	Pro Tyr Ala Ser Gln	
	130	135	140	145
cac acg gtg cag cat cct caa atc aga ggg ttg gtt ccg tct aga atg				539
His Thr Val Gln	His Pro Gln Ile Arg	Gly Leu Val Pro	Ser Arg Met	
	150	155	160	
cct ttg cct cac aac att cca gag aac gaa cca att ttc gtc aat gca				587
Pro Leu Pro His	Asn Ile Pro Glu Asn Glu	Pro Ile Phe	Val Asn Ala	
	165	170	175	
aaa cag tac caa gcc att ctc cgc cgc aga gag cgc cgt gca aag ctt				635
Lys Gln Tyr	Gln Ala Ile Leu	Arg Arg Arg Glu	Arg Ala Lys Leu	
	180	185	190	
gaa gct cag aac aag ctc atc aaa gtc cgc aaa cca tat ctt cac gag				683
Glu Ala Gln Asn	Lys Leu Ile Lys Val Arg	Lys Pro Tyr	Leu His Glu	
	195	200	205	
tcg cgg cac ctc cat gca cta aag aga gtt aga ggc tct ggt gga cgt				731
Ser Arg His Leu	His Ala Leu Lys	Arg Val Arg	Gly Ser Gly Gly Arg	
	210	215	220	225
ttc ctc aac aca aag aag cat caa gaa tca aat tcc tca cta tct cct				779
Phe Leu Asn Thr	Lys His Gln Glu Ser	Asn Ser Ser	Leu Ser Pro	
	230	235	240	
cca ttc ttg att cca cct cat gtc ttc aag aac tct cca gga aag ttc				827
Pro Phe Leu Ile	Pro Pro His Val Phe	Lys Asn Ser	Pro Gly Lys Phe	
	245	250	255	
cgg caa atg gac att tca agg ggt ggg gtt gtg tct agt gtc tcg aca				875
Arg Gln Met Asp	Ile Ser Arg	Gly Gly Val Val	Ser Ser Val Ser Thr	
	260	265	270	
aca tct tgc tcg gac ata acc ggg aac aac aac gac atg ttc cag caa				923
Thr Ser Cys Ser	Asp Ile Thr	Gly Asn Asn Asn	Asp Met Phe Gln Gln	
	275	280	285	

aac cca caa ttc agg ttc tca ggt tat cca tca aac cac cat gtc tca 971
 Asn Pro Gln Phe Arg Phe Ser Gly Tyr Pro Ser Asn His His Val Ser
 290 295 300 305

gtc ctc atg tga gagagctccc gcaagtgggtg gatgaggc 1011
 Val Leu Met

<210> 30 <211> 308 <212> PRT <213> Arabidopsis thaliana <400> 30

Met Gln Glu Phe His Ser Ser Lys Asp Ser Leu Pro Cys Pro Ala Thr
 1 5 10 15

Ser Trp Asp Asn Ser Val Phe Thr Asn Ser Asn Val Gln Gly Ser Ser
 20 25 30

Ser Leu Thr Asp Asn Asn Thr Leu Ser Leu Thr Met Glu Met Lys Gln
 35 40 45

Thr Gly Phe Gln Met Gln His Tyr Asp Ser Ser Ser Thr Gln Ser Thr
 50 55 60

Gly Gly Glu Ser Tyr Ser Glu Val Ala Ser Leu Ser Glu Pro Thr Asn
 65 70 75 80

Arg Tyr Gly His Asn Ile Val Val Thr His Leu Ser Gly Tyr Lys Glu
 85 90 95

Asn Pro Glu Asn Pro Ile Gly Ser His Ser Ile Ser Lys Val Ser Gln
 100 105 110

Asp Ser Val Val Leu Pro Ile Glu Ala Ala Ser Trp Pro Leu His Gly
 115 120 125

Asn Val Thr Pro His Phe Asn Gly Phe Leu Ser Phe Pro Tyr Ala Ser
 130 135 140

Gln His Thr Val Gln His Pro Gln Ile Arg Gly Leu Val Pro Ser Arg
 145 150 155 160

Met Pro Leu Pro His Asn Ile Pro Glu Asn Glu Pro Ile Phe Val Asn
 165 170 175

Ala Lys Gln Tyr Gln Ala Ile Leu Arg Arg Arg Glu Arg Arg Ala Lys

180

185

190

Leu Glu Ala Gln Asn Lys Leu Ile Lys Val Arg Lys Pro Tyr Leu His
195 200 205

Glu Ser Arg His Leu His Ala Leu Lys Arg Val Arg Gly Ser Gly Gly
210 215 220

Arg Phe Leu Asn Thr Lys Lys His Gln Glu Ser Asn Ser Ser Leu Ser
225 230 235 240

Pro Pro Phe Leu Ile Pro Pro His Val Phe Lys Asn Ser Pro Gly Lys
245 250 255

Phe Arg Gln Met Asp Ile Ser Arg Gly Gly Val Val Ser Ser Val Ser
260 265 270

Thr Thr Ser Cys Ser Asp Ile Thr Gly Asn Asn Asn Asp Met Phe Gln
275 280 285

Gln Asn Pro Gln Phe Arg Phe Ser Gly Tyr Pro Ser Asn His His Val
290 295 300

Ser Val Leu Met
305

<210> 31 <211> 1038 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (50)..(736) <223> G1760

<400> 31
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Met Gly Arg
1

ggg aag att gtg atc caa agg atc gat gat tca acg agt aga caa gtc 106
Gly Lys Ile Val Ile Gln Arg Ile Asp Asp Ser Thr Ser Arg Gln Val
5 10 15

act ttc tcc aaa cga aga aag ggc ctt atc aag aaa gcc aaa gag cta 154
Thr Phe Ser Lys Arg Arg Lys Gly Leu Ile Lys Ala Lys Glu Leu
20 25 30 35

gct att ctc tgt gat gcc gag gtc ggt ctc atc atc ttc tct agc acc 202
Ala Ile Leu Cys Asp Ala Glu Val Gly Leu Ile Ile Phe Ser Ser Thr
40 45 50

gga aag ctc tat gac ttt gca agc tcc agc atg aag tcg gtt att gat 250
Gly Lys Leu Tyr Asp Phe Ala Ser Ser Ser Met Lys Ser Val Ile Asp

	55	60	65	
	aga tac aac aag agc aag atc gag caa caa caa cta ttg aac ccc gca	298		
	Arg Tyr Asn Lys Ser Lys Ile Glu Gln Gln Gln Leu Leu Asn Pro Ala			
	70 75 80			
	tca gaa gtc aag ttt tgg cag aga gaa gct gct gtt cta aga caa gaa	346		
	Ser Glu Val Lys Phe Trp Gln Arg Glu Ala Ala Val Leu Arg Gln Glu			
	85 90 95			
	ctg cat gct ttg caa gaa aat cat cgg caa atg atg gga gaa cag cta	394		
	Leu His Ala Leu Gln Glu Asn His Arg Gln Met Gly Glu Gln Leu			
	100 105 110 115			
	aat ggt tta agt gtt aac gag cta aac agt ctt gag aat caa att gag	442		
	Asn Gly Leu Ser Val Asn Glu Leu Asn Ser Leu Glu Asn Gln Ile Glu			
	120 125 130			
	ata agt ttg cgt gga att cgt atg aga aag gaa caa ctg ttg act caa	490		
	Ile Ser Leu Arg Gly Ile Arg Met Arg Lys Glu Gln Leu Thr Gln			
	135 140 145			
	gaa atc caa gaa cta agc caa aag agg aat ctt att cat cag gaa aac	538		
	Glu Ile Gln Glu Leu Ser Gln Lys Arg Asn Leu Ile His Gln Glu Asn			
	150 155 160			
	ctc gat tta tct agg aaa gta caa cgg att cat caa gaa aat gtg gag	586		
	Leu Asp Leu Ser Arg Lys Val Gln Arg Ile His Gln Glu Asn Val Glu			
	165 170 175			
	ctc tac aag aag gct tat atg gca aac aca aac ggg ttt aca cac cgt	634		
	Leu Tyr Lys Lys Ala Tyr Met Ala Asn Thr Asn Gly Phe Thr His Arg			
	180 185 190 195			
	gaa gta gct gtt gcg gat gat gaa tca cac act cag att cgg ctg caa	682		
	Glu Val Ala Val Ala Asp Asp Glu Ser His Thr Gln Ile Arg Leu Gln			
	200 205 210			
	cta agc cag cct gaa cat tcc gat tat gac act cca cca aga gca aac	730		
	Leu Ser Gln Pro Glu His Ser Asp Tyr Asp Thr Pro Pro Arg Ala Asn			
	215 220 225			
	gaa taa cagagagatt gaagttggaa gataccatga tggtgaagaa cactccaaag	786		
	Glu			
	gccttggttt gaataagggtt cttgaactgg aaacctctat acaccaagcc acgtacgata	846		
	agcagcatgg ttcttctaac atagtcatat ttccaatcct aaatataatt aaagcatata	906		
	taattaaaaa ccggtgtgtt tatactcatc ttgagtatta atattgtact tgtttataac	966		
	catagattcg tcaattaata gagaaaaatc atatgaatta ttatccaaaa aaaaaaaaaa	1026		
	aaaaaaaaaa aa	1038		

<210> 32 <211> 228 <212> PRT <213> Arabidopsis thaliana <400> 32

Met Gly Arg Gly Lys Ile Val Ile Gln Arg Ile Asp Asp Ser Thr Ser
1 5 10 15

Arg Gln Val Thr Phe Ser Lys Arg Arg Lys Gly Leu Ile Lys Lys Ala
20 25 30

Lys Glu Leu Ala Ile Leu Cys Asp Ala Glu Val Gly Leu Ile Ile Phe
35 40 45

Ser Ser Thr Gly Lys Leu Tyr Asp Phe Ala Ser Ser Ser Met Lys Ser
50 55 60

Val Ile Asp Arg Tyr Asn Lys Ser Lys Ile Glu Gln Gln Gln Leu Leu
65 70 75 80

Asn Pro Ala Ser Glu Val Lys Phe Trp Gln Arg Glu Ala Ala Val Leu
85 90 95

Arg Gln Glu Leu His Ala Leu Gln Glu Asn His Arg Gln Met Met Gly
100 105 110

Glu Gln Leu Asn Gly Leu Ser Val Asn Glu Leu Asn Ser Leu Glu Asn
115 120 125

Gln Ile Glu Ile Ser Leu Arg Gly Ile Arg Met Arg Lys Glu Gln Leu
130 135 140

Leu Thr Gln Glu Ile Gln Glu Leu Ser Gln Lys Arg Asn Leu Ile His
145 150 155 160

Gln Glu Asn Leu Asp Leu Ser Arg Lys Val Gln Arg Ile His Gln Glu
165 170 175

Asn Val Glu Leu Tyr Lys Lys Ala Tyr Met Ala Asn Thr Asn Gly Phe
180 185 190

Thr His Arg Glu Val Ala Val Ala Asp Asp Glu Ser His Thr Gln Ile
195 200 205

Arg Leu Gln Leu Ser Gln Pro Glu His Ser Asp Tyr Asp Thr Pro Pro
210 215 220

Arg Ala Asn Glu
225

<210> 33 <211> 609 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(609) <223> G1820

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Met Ala Glu Asn Asn Asn Asn Asn Gly Asp Asn Met Asn Asn Asp Asn
1 5 10 15
cac cag caa cca ccg tcg tac tcg cag ctg ccg ccg atg gca tca tcc 96
His Gln Gln Pro Pro Ser Tyr Ser Gln Leu Pro Pro Met Ala Ser Ser
20 25 30
aac cct cag tta cgt aat tac tgg att gag cag atg gaa acc gtc tcg 144
Asn Pro Gln Leu Arg Asn Tyr Trp Ile Glu Gln Met Glu Thr Val Ser
35 40 45
gat ttc aaa aac cgt cag ctt cca ttg gct cga att aag aag atc atg 192
Asp Phe Lys Asn Arg Gln Leu Pro Leu Ala Arg Ile Lys Lys Ile Met
50 55 60
aag gct gat cca gat gtg cac atg gtc tcc gca gag gct ccg atc atc 240
Lys Ala Asp Pro Asp Val His Met Val Ser Ala Glu Ala Pro Ile Ile
65 70 75 80
ttc gca aag gct tgc gaa atg ttc atc gtt gat ctc acg atg ccg tcg 288
Phe Ala Lys Ala Cys Glu Met Phe Ile Val Asp Leu Thr Met Arg Ser
85 90 95
tgg ctc aaa gcc gag gag aac aaa cgc cac acg ctt cag aaa tcg gat 336
Trp Leu Lys Ala Glu Glu Asn Lys Arg His Thr Leu Gln Lys Ser Asp
100 105 110
atc tcc aac gca gtg gct agc tct ttc acc tac gat ttc ctt ctt gat 384
Ile Ser Asn Ala Val Ala Ser Ser Phe Thr Tyr Asp Phe Leu Leu Asp
115 120 125
gtt gtc cct aag gac gag tct atc gcc acc gct gat cct ggc ttt gtg 432
Val Val Pro Lys Asp Glu Ser Ile Ala Thr Ala Asp Pro Gly Phe Val
130 135 140
gct atg cca cat cct gac ggt gga gga gta ccg caa tat tat tat cca 480
Ala Met Pro His Pro Asp Gly Gly Gly Val Pro Gln Tyr Tyr Tyr Pro
145 150 155 160
ccg gga gtg gtg atg gga act cct atg gtt ggt agt gga atg tac gcg 528
Pro Gly Val Val Met Met Gly Thr Pro Met Val Gly Ser Gly Met Tyr Ala
165 170 175
cca tcg cag gcg tgg cca gca gcg gct ggt gac ggg gag gat gat gct 576
Pro Ser Gln Ala Trp Pro Ala Ala Ala Gly Asp Gly Glu Asp Asp Ala
180 185 190

gag gat aat gga gga aac ggc ggc gga aat tga
 Glu Asp Asn Gly Gly Asn Gly Gly Gly Asn
 195 200

609

<210> 34 <211> 202 <212> PRT <213> Arabidopsis thaliana <400> 34

Met Ala Glu Asn Asn Asn Asn Asn Gly Asp Asn Met Asn Asn Asp Asn
 1 5 10 15

His Gln Gln Pro Pro Ser Tyr Ser Gln Leu Pro Pro Met Ala Ser Ser
 20 25 30

Asn Pro Gln Leu Arg Asn Tyr Trp Ile Glu Gln Met Glu Thr Val Ser
 35 40 45

Asp Phe Lys Asn Arg Gln Leu Pro Leu Ala Arg Ile Lys Lys Ile Met
 50 55 60

Lys Ala Asp Pro Asp Val His Met Val Ser Ala Glu Ala Pro Ile Ile
 65 70 75 80

Phe Ala Lys Ala Cys Glu Met Phe Ile Val Asp Leu Thr Met Arg Ser
 85 90 95

Trp Leu Lys Ala Glu Glu Asn Lys Arg His Thr Leu Gln Lys Ser Asp
 100 105 110

Ile Ser Asn Ala Val Ala Ser Ser Phe Thr Tyr Asp Phe Leu Leu Asp
 115 120 125

Val Val Pro Lys Asp Glu Ser Ile Ala Thr Ala Asp Pro Gly Phe Val
 130 135 140

Ala Met Pro His Pro Asp Gly Gly Gly Val Pro Gln Tyr Tyr Tyr Pro
 145 150 155 160

Pro Gly Val Val Met Gly Thr Pro Met Val Gly Ser Gly Met Tyr Ala
 165 170 175

Pro Ser Gln Ala Trp Pro Ala Ala Ala Gly Asp Gly Glu Asp Asp Ala
 180 185 190

Glu Asp Asn Gly Gly Asn Gly Gly Gly Asn
 195 200

<210> 35 <211> 1155 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
 <222> (76)..(1077) <223> G1930

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 atttcgttcc ataac atg gat gcc atg agt agc gta gac gag agc tct aca 111
 Met Asp Ala Met Ser Ser Val Asp Glu Ser Ser Thr
 1 5 10
 act aca gat tcc att ccg gcg aga aag tca tgc tct ccg gcg agt tta 159
 Thr Thr Asp Ser Ile Pro Ala Arg Lys Ser Ser Ser Pro Ala Ser Leu
 15 20 25
 cta tat aga atg gga agc gga aca agc gtg gta ctt gat tca gag aac 207
 Leu Tyr Arg Met Gly Ser Gly Thr Ser Val Val Leu Asp Ser Glu Asn
 30 35 40
 ggt gtc gaa gtc gaa gtc gaa gcc gaa tca aga aag ctt cct tct tca 255
 Gly Val Glu Val Glu Val Glu Ala Glu Ser Arg Lys Leu Pro Ser Ser
 45 50 55 60
 aga ttc aaa ggt gtt gtt cct caa cca aat gga aga tgg gga gct cag 303
 Arg Phe Lys Gly Val Val Pro Gln Pro Asn Gly Arg Trp Gly Ala Gln
 65 70 75
 att tac gag aaa cat caa cgc gtg tgg ctt ggt act ttc aac gag gaa 351
 Ile Tyr Glu Lys His Gln Arg Val Trp Leu Gly Thr Phe Asn Glu Glu
 80 85 90
 gac gaa gca gct cgt gct tac gac gtc gcg gct cac cgt ttc cgt ggc 399
 Asp Glu Ala Ala Arg Ala Tyr Asp Val Ala Ala His Arg Phe Arg Gly
 95 100 105
 cgc gat gcc gtt act aat ttc aaa gac acg acg ttc gaa gaa gag gtt 447
 Arg Asp Ala Val Thr Asn Phe Lys Asp Thr Thr Phe Glu Glu Glu Val
 110 115 120
 gag ttc tta aac gcg cat tgc aaa tca gag atc gta gat atg ttg aga 495
 Glu Phe Leu Asn Ala His Ser Lys Ser Glu Ile Val Asp Met Leu Arg
 125 130 135 140
 aaa cac act tac aaa gaa gag tta gac caa agg aaa cgt aac cgt gac 543
 Lys His Thr Tyr Lys Glu Glu Leu Asp Gln Arg Lys Arg Asn Arg Asp
 145 150 155
 ggt aac gga aaa gag acg acg gcg ttt gct ttg gct tgc atg gtg gtt 591
 Gly Asn Gly Lys Glu Thr Thr Ala Phe Ala Leu Ala Ser Met Val Val
 160 165 170
 atg acg ggg ttt aaa acg gcg gag tta ctg ttt gag aaa acg gta acg 639
 Met Thr Gly Phe Lys Thr Ala Glu Leu Leu Phe Glu Lys Thr Val Thr
 175 180 185
 cca agt gac gtc ggg aaa cta aac cgt tta gtt ata cca aaa cac caa 687

Pro Ser Asp Val Gly Lys Leu Asn Arg Leu Val Ile Pro Lys His Gln
190 195 200

gcg gag aaa cat ttt ccg tta ccg tta ggt aat aat aac gtc tcc gtt 735
Ala Glu Lys His Phe Pro Leu Pro Leu Gly Asn Asn Val Ser Val
205 210 215 220

aaa ggt atg ctg ttg aat ttc gaa gac gtt aac ggg aaa gtg tgg agg 783
Lys Gly Met Leu Leu Asn Phe Glu Asp Val Asn Gly Lys Val Trp Arg
225 230 235

ttc cgt tac tct tat tgg aat agt agt caa agt tat gtg ttg acc aaa 831
Phe Arg Tyr Ser Tyr Trp Asn Ser Ser Gln Ser Tyr Val Thr Lys
240 245 250

ggt tgg agt aga ttc gtt aaa gag aag aga ctt tgt gct ggt gat ttg 879
Gly Trp Ser Arg Phe Val Lys Glu Lys Arg Leu Cys Ala Gly Asp Leu
255 260 265

atc agt ttt aaa aga tcc aac gat caa gat caa aaa ttc ttt atc ggg 927
Ile Ser Phe Lys Arg Ser Asn Asp Gln Asp Gln Lys Phe Phe Ile Gly
270 275 280

tgg aaa tcg aaa tcc ggg ttg gat cta gag acg ggt cgg gtt atg aga 975
Trp Lys Ser Lys Ser Gly Leu Asp Leu Glu Thr Gly Arg Val Met Arg
285 290 295 300

ttg ttt ggg gtt gat att tct tta aac gcc gtc gtt gta gtg aag gaa 1023
Leu Phe Gly Val Asp Ile Ser Leu Asn Ala Val Val Val Val Lys Glu
305 310 315

aca acg gag gtg tta atg tcg tcg tta agg tgt aag aag caa cga gtt 1071
Thr Thr Glu Val Leu Met Ser Ser Leu Arg Cys Lys Lys Gln Arg Val
320 325 330

ttg taa taacaatttta acaacttggg aaagaaaaaa aagctttttg attttaatt 1127
Leu

ctcttcaacg ttaatcttgc tgaagatta 1155

<210> 36 <211> 333 <212> PRT <213> Arabidopsis thaliana <400> 36

Met Asp Ala Met Ser Ser Val Asp Glu Ser Ser Thr Thr Thr Asp Ser
1 5 10 15

Ile Pro Ala Arg Lys Ser Ser Ser Pro Ala Ser Leu Leu Tyr Arg Met
20 25 30

Gly Ser Gly Thr Ser Val Val Leu Asp Ser Glu Asn Gly Val Glu Val
35 40 45

Glu Val Glu Ala Glu Ser Arg Lys Leu Pro Ser Ser Arg Phe Lys Gly

50

55

60

Val Val Pro Gln Pro Asn Gly Arg Trp Gly Ala Gln Ile Tyr Glu Lys
65 70 75 80

His Gln Arg Val Trp Leu Gly Thr Phe Asn Glu Glu Asp Glu Ala Ala
85 90 95

Arg Ala Tyr Asp Val Ala Ala His Arg Phe Arg Gly Arg Asp Ala Val
100 105 110

Thr Asn Phe Lys Asp Thr Thr Phe Glu Glu Glu Val Glu Phe Leu Asn
115 120 125

Ala His Ser Lys Ser Glu Ile Val Asp Met Leu Arg Lys His Thr Tyr
130 135 140

Lys Glu Glu Leu Asp Gln Arg Lys Arg Asn Arg Asp Gly Asn Gly Lys
145 150 155 160

Glu Thr Thr Ala Phe Ala Leu Ala Ser Met Val Val Met Thr Gly Phe
165 170 175

Lys Thr Ala Glu Leu Leu Phe Glu Lys Thr Val Thr Pro Ser Asp Val
180 185 190

Gly Lys Leu Asn Arg Leu Val Ile Pro Lys His Gln Ala Glu Lys His
195 200 205

Phe Pro Leu Pro Leu Gly Asn Asn Asn Val Ser Val Lys Gly Met Leu
210 215 220

Leu Asn Phe Glu Asp Val Asn Gly Lys Val Trp Arg Phe Arg Tyr Ser
225 230 235 240

Tyr Trp Asn Ser Ser Gln Ser Tyr Val Leu Thr Lys Gly Trp Ser Arg
245 250 255

Phe Val Lys Glu Lys Arg Leu Cys Ala Gly Asp Leu Ile Ser Phe Lys
260 265 270

Arg Ser Asn Asp Gln Asp Gln Lys Phe Phe Ile Gly Trp Lys Ser Lys
275 280 285

Ser Gly Leu Asp Leu Glu Thr Gly Arg Val Met Arg Leu Phe Gly Val
290 295 300

Asp Ile Ser Leu Asn Ala Val Val Val Val Lys Glu Thr Thr Glu Val
305 310 315 320

Leu Met Ser Ser Leu Arg Cys Lys Lys Gln Arg Val Leu
325 330

<210> 37 <211> 525 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(525) <223> G2010

<400> 37
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Met Glu Gly Lys Arg Ser Gln Gly Gln Tyr Met Lys Lys Ser
1 5 10 15
tac ctt gtg gaa gaa gat atg gag act gat acg gat gaa gaa gag gaa 96
Tyr Leu Val Glu Glu Asp Met Glu Thr Asp Thr Asp Glu Glu Glu
20 25 30
gta ggt agg gat aga gtt aga ggg tct aga ggt agc atc aat cgt ggt 144
Val Gly Arg Asp Arg Val Arg Gly Ser Arg Gly Ser Ile Asn Arg Gly
35 40 45
ggc tgc ttg cgg ctt tgc caa gta gat aga tgc aca gct gat atg aaa 192
Gly Ser Leu Arg Leu Cys Gln Val Asp Arg Cys Thr Ala Asp Met Lys
50 55 60
gag gca aaa ctg tat cac cgg aga cac aaa gtg tgt gaa gtt cat gca 240
Glu Ala Lys Leu Tyr His Arg Arg His Lys Val Cys Glu Val His Ala
65 70 75 80
aag gca tct tct gtc ttt ctc tca gga ctt aac caa cgc ttt tgt caa 288
Lys Ala Ser Ser Val Phe Leu Ser Gly Leu Asn Gln Arg Phe Cys Gln
85 90 95
caa tgc agt agg ttt cat gac ctc caa gag ttt gat gaa gct aag aga 336
Gln Cys Ser Arg Phe His Asp Leu Gln Glu Phe Asp Glu Ala Lys Arg
100 105 110
agt tgc agg agg cgc tta gct gga cac aat gag cga aga agg aag agc 384
Ser Cys Arg Arg Arg Leu Ala Gly His Asn Glu Arg Arg Arg Lys Ser
115 120 125
tct ggt gag agt act tat gga gaa gga tca ggt cgg aga gga atc aat 432
Ser Gly Glu Ser Thr Tyr Gly Glu Gly Ser Gly Arg Arg Gly Ile Asn
130 135 140
ggt cag gtg gtg atg cag aat caa gaa aga tca agg gta gag atg aca 480
Gly Gln Val Val Met Gln Asn Gln Glu Arg Ser Arg Val Glu Met Thr
145 150 155 160

ctt cct atg cca aac tca tca ttc aag cga cca cag att aga tag 525
 Leu Pro Met Pro Asn Ser Ser Phe Lys Arg Pro Gln Ile Arg
 165 170

<210> 38 <211> 174 <212> PRT <213> Arabidopsis thaliana <400> 38

Met Glu Gly Lys Arg Ser Gln Gly Gln Gly Tyr Met Lys Lys Lys Ser
 1 5 10 15

Tyr Leu Val Glu Glu Asp Met Glu Thr Asp Thr Asp Glu Glu Glu Glu
 20 25 30

Val Gly Arg Asp Arg Val Arg Gly Ser Arg Gly Ser Ile Asn Arg Gly
 35 40 45

Gly Ser Leu Arg Leu Cys Gln Val Asp Arg Cys Thr Ala Asp Met Lys
 50 55 60

Glu Ala Lys Leu Tyr His Arg Arg His Lys Val Cys Glu Val His Ala
 65 70 75 80

Lys Ala Ser Ser Val Phe Leu Ser Gly Leu Asn Gln Arg Phe Cys Gln
 85 90 95

Gln Cys Ser Arg Phe His Asp Leu Gln Glu Phe Asp Glu Ala Lys Arg
 100 105 110

Ser Cys Arg Arg Arg Leu Ala Gly His Asn Glu Arg Arg Arg Lys Ser
 115 120 125

Ser Gly Glu Ser Thr Tyr Gly Glu Gly Ser Gly Arg Arg Gly Ile Asn
 130 135 140

Gly Gln Val Val Met Gln Asn Gln Glu Arg Ser Arg Val Glu Met Thr
 145 150 155 160

Leu Pro Met Pro Asn Ser Ser Phe Lys Arg Pro Gln Ile Arg
 165 170

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	1				5					10			
aga agg cag cca cct caa gaa gaa gtg cct aac cac gtg gct aca agg													99
Arg Arg Gln Pro Pro Gln Glu Glu Val Pro Asn His Val Ala Thr Arg													
15 20 25													
aag ccg tac aga ggg ata cgg agg agg aag tgg ggc aag tgg gtg gct													147
Lys Pro Tyr Arg Gly Ile Arg Arg Arg Lys Trp Gly Lys Trp Val Ala													
30 35 40													
gag att cgt gag cct aac aaa cgc tca cgg ctt tgg ctt ggc tct tac													195
Glu Ile Arg Glu Pro Asn Lys Arg Ser Arg Leu Trp Leu Gly Ser Tyr													
45 50 55 60													
aca acc gat atc gcc gcc gct aga gcc tac gac gtg gcc gtc ttc tac													243
Thr Thr Asp Ile Ala Ala Ala Arg Ala Tyr Asp Val Ala Val Phe Tyr													
65 70 75													
ctc cgt ggc ccc tcc gca cgt ctc aac ttc cct gat ctt etc ttg caa													291
Leu Arg Gly Pro Ser Ala Arg Leu Phe Pro Asp Leu Leu Leu Gln													
80 85 90													
gaa gag gac cat ctc tca gcc gcc acc acc gct gac atg ccc gca gct													339
Glu Glu Asp His Leu Ser Ala Ala Thr Thr Ala Asp Met Pro Ala Ala													
95 100 105													
ctt ata agg gaa aaa gcg gcg gag gtc ggc gcc aga gtc gac gct ctt													387
Leu Ile Arg Glu Lys Ala Ala Glu Val Gly Ala Arg Val Asp Ala Leu													
110 115 120													
cta gct tct gcc gct cct tcg atg gct cac tcc act ccg ccg gta ata													435
Leu Ala Ser Ala Ala Pro Ser Met Ala His Ser Thr Pro Pro Val Ile													
125 130 135 140													
aaa ccc gac ttg aat caa ata ccc gaa tcc gga gat ata tag													477
Lys Pro Asp Leu Asn Gln Ile Pro Glu Ser Gly Asp Ile													
145 150													
tcaatttata tacatgtagt ttgttttgtt tgattagaag attacattta catacaagat													537
acacatagat actggaataa ataggatatgt atacattcat aaattatctt atgtatcaaa													597
gaattttata gattctgatt agctttttgt ttttgttttt gataagaact ctgattagtt													657
gtccggagac aaaaccgct aagagcaatc catgagaagc tagcgagtgt tttttagttc													717
aagttgtaat ataatgcat attaattett tagtaatttt gt													759
<210> 40 <211> 153 <212> PRT <213> Arabidopsis thaliana <400> 40													
Met Glu Arg Glu Gln Glu Glu Ser Thr Met Arg Lys Arg Arg Gln Pro													
1 5 10 15													
Pro Gln Glu Glu Val Pro Asn His Val Ala Thr Arg Lys Pro Tyr Arg													

20 25 30

Gly Ile Arg Arg Arg Lys Trp Gly Lys Trp Val Ala Glu Ile Arg Glu
35 40 45

Pro Asn Lys Arg Ser Arg Leu Trp Leu Gly Ser Tyr Thr Thr Asp Ile
50 55 60

Ala Ala Ala Arg Ala Tyr Asp Val Ala Val Phe Tyr Leu Arg Gly Pro
65 70 75 80

Ser Ala Arg Leu Asn Phe Pro Asp Leu Leu Leu Gln Glu Glu Asp His
85 90 95

Leu Ser Ala Ala Thr Thr Ala Asp Met Pro Ala Ala Leu Ile Arg Glu
100 105 110

Lys Ala Ala Glu Val Gly Ala Arg Val Asp Ala Leu Leu Ala Ser Ala
115 120 125

Ala Pro Ser Met Ala His Ser Thr Pro Pro Val Ile Lys Pro Asp Leu
130 135 140

Asn Gln Ile Pro Glu Ser Gly Asp Ile
145 150

<210> 41 <211> 1650 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (107)..(1393) <223> G20

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gccatagtgc gtctagggtt tggttggtgg gaagaaggtt ccgata atg gcg tgc 115
Met Ala Ser
1
gtg tgc tgc tgc gat caa gga cct aag aca gaa gca gga tgt agc ggc 163
Val Ser Ser Ser Asp Gln Gly Pro Lys Thr Glu Ala Gly Cys Ser Gly
5 10 15
gga gga gga gga gag agc tgc gag aca gtg gcg gcg agt gat cag atg 211
Gly Gly Gly Gly Glu Ser Ser Glu Thr Val Ala Ala Ser Asp Gln Met
20 25 30 35
ttg ttg tat aga ggt ttt aag aag gcg aag aag gag aga ggt tgt aca 259
Leu Leu Tyr Arg Gly Phe Lys Lys Ala Lys Lys Glu Arg Gly Cys Thr
40 45 50

gct aag gag cgt att agt aaa atg cct cgg tgc act gct ggg aaa agg	307
Ala Lys Glu Arg Ile Ser Lys Met Pro Pro Cys Thr Ala Gly Lys Arg	
55 60 65	
agt tcc ata tac cgg gga gtc acc aga cat aga tgg aca ggt cgt tat	355
Ser Ser Ile Tyr Arg Gly Val Thr Arg His Arg Trp Thr Gly Arg Tyr	
70 75 80	
gaa gct cac ctt tgg gat aag agt acc tgg aac caa aac cag aac aag	403
Glu Ala His Leu Trp Asp Lys Ser Thr Trp Asn Gln Asn Gln Asn Lys	
85 90 95	
aag gga aaa caa gtt tat cta gga gca tat gat gat gaa gag gct gct	451
Lys Gly Lys Gln Val Tyr Leu Gly Ala Tyr Asp Asp Glu Glu Ala Ala	
100 105 110 115	
gct aga gct tac gac ctt gct gcc tta aaa tat tgg ggt cct ggg aca	499
Ala Arg Ala Tyr Asp Leu Ala Ala Leu Lys Tyr Trp Gly Pro Gly Thr	
120 125 130	
ctt ata aat ttt cgg gtg act gat tat acc agg gat tta gaa gaa atg	547
Leu Ile Asn Phe Pro Val Thr Asp Tyr Thr Arg Asp Leu Glu Glu Met	
135 140 145	
caa aat ctc tca agg gaa gaa tac ctt gca tct tta cgt aga tat ccc	595
Gln Asn Leu Ser Arg Glu Glu Tyr Leu Ala Ser Leu Arg Arg Tyr Pro	
150 155 160	
ttt ggc aga aaa agc agc ggt ttc tct agg gga ata gcg aaa tat cgt	643
Phe Gly Arg Lys Ser Ser Gly Phe Ser Arg Gly Ile Ala Lys Tyr Arg	
165 170 175	
gga ctt caa agc cga tgg gac gca tca gcc agt cgt atg cct gga cct	691
Gly Leu Gln Ser Arg Trp Asp Ala Ser Ala Ser Arg Met Pro Gly Pro	
180 185 190 195	
gaa tac ttc agt aac att cat tac ggg gca ggt gat gat cgt gga aca	739
Glu Tyr Phe Ser Asn Ile His Tyr Gly Ala Gly Asp Asp Arg Gly Thr	
200 205 210	
gaa ggt gac ttt cta ggt agc ttt tgt ctg gaa aga aag att gat cta	787
Glu Gly Asp Phe Leu Gly Ser Phe Cys Leu Glu Arg Lys Ile Asp Leu	
215 220 225	
aca gga tac ata aag tgg tgg gga gcc aac aag aac cgt caa cca gaa	835
Thr Gly Tyr Ile Lys Trp Trp Gly Ala Asn Lys Asn Arg Gln Pro Glu	
230 235 240	
tct tca tca aaa gca tca gag gat gca aac gtc gaa gat gct ggt act	883
Ser Ser Ser Lys Ala Ser Glu Asp Ala Asn Val Glu Asp Ala Gly Thr	
245 250 255	
gag ctt aaa aca ctg gaa cac aca tcc cat gca aca gaa cca tac aag	931
Glu Leu Lys Thr Leu Glu His Thr Ser His Ala Thr Glu Pro Tyr Lys	
260 265 270 275	
gcg cca aac ctt ggc gtc ctt tgt gga act cag aga aaa gaa aaa gaa	979

Ala Pro Asn Leu Gly Val Leu Cys Gly Thr Gln Arg Lys Glu Lys Glu	280	285	290	
ata tca tca cca tca agc tct tct gct tta agc atc ttg tct cag tgg				1027
Ile Ser Ser Pro Ser Ser Ser Ser Ala Leu Ser Ile Leu Ser Gln Ser	295	300	305	
cct gcc ttc aag agc cta gag gag aaa gtg ttg aag atc caa gaa agc				1075
Pro Ala Phe Lys Ser Leu Glu Glu Lys Val Leu Lys Ile Gln Glu Ser	310	315	320	
tgc aat aat gaa aac gat gag aat gca aac cgt aac atc atc aat atg				1123
Cys Asn Asn Glu Asn Asp Glu Asn Ala Asn Arg Asn Ile Ile Asn Met	325	330	335	
gag aag aat aac ggc aag gca ata gag aaa cca gtt gtg agt cat gga				1171
Glu Lys Asn Asn Gly Lys Ala Ile Glu Lys Pro Val Val Ser His Gly	340	345	350	355
gtt gct tta ggc ggt gct gct gct ttg tct ctt cag aaa agc atg tac				1219
Val Ala Leu Gly Gly Ala Ala Ala Leu Ser Leu Gln Lys Ser Met Tyr	360	365	370	
cca ctt acc tct ctc tta acg gct cca ttg ctc acc aac tac aat aca				1267
Pro Leu Thr Ser Leu Leu Thr Ala Pro Leu Leu Thr Asn Tyr Asn Thr	375	380	385	
ttg gat cct ctt gca gac cct att ctc tgg aca cca ttt ctt cct tca				1315
Leu Asp Pro Leu Ala Asp Pro Ile Leu Trp Thr Pro Phe Leu Pro Ser	390	395	400	
gga tcc tct ctt act tca gag gtg aca aag aca gag acc agc tgt tcc				1363
Gly Ser Ser Leu Thr Ser Glu Val Thr Lys Thr Glu Thr Ser Cys Ser	405	410	415	
acg tac agc tac ctc cca caa gag aaa tga gccgttccct ttagacttta				1413
Thr Tyr Ser Tyr Leu Pro Gln Glu Lys	420	425		
tgtagtgcag attctccttt tttagatga attcgtcgac ttgacatctc tttgtctctt				1473
ttatggagaa aaagtgtgga aaagtgtgac aatggtctga agcaggaatg tacagggttt				1533
gttagtggtt gtgttttttt ttttccagtg tggaatatag aatcatgata ttttgtgtaa				1593
aacagaaaaa agttatcatt atagtataga agtttgctct taaaaaaaaa aaaaaaa				1650
<210> 42 <211> 428 <212> PRT <213> Arabidopsis thaliana <400> 42				
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Cys Ser Gly Gly Gly Gly Gly Glu Ser Ser Glu Thr Val Ala Ala Ser	20		25	30

Asp Gln Met Leu Leu Tyr Arg Gly Phe Lys Lys Ala Lys Lys Glu Arg
35 40 45

Gly Cys Thr Ala Lys Glu Arg Ile Ser Lys Met Pro Pro Cys Thr Ala
50 55 60

Gly Lys Arg Ser Ser Ile Tyr Arg Gly Val Thr Arg His Arg Trp Thr
65 70 75 80

Gly Arg Tyr Glu Ala His Leu Trp Asp Lys Ser Thr Trp Asn Gln Asn
85 90 95

Gln Asn Lys Lys Gly Lys Gln Val Tyr Leu Gly Ala Tyr Asp Asp Glu
100 105 110

Glu Ala Ala Ala Arg Ala Tyr Asp Leu Ala Ala Leu Lys Tyr Trp Gly
115 120 125

Pro Gly Thr Leu Ile Asn Phe Pro Val Thr Asp Tyr Thr Arg Asp Leu
130 135 140

Glu Glu Met Gln Asn Leu Ser Arg Glu Glu Tyr Leu Ala Ser Leu Arg
145 150 155 160

Arg Tyr Pro Phe Gly Arg Lys Ser Ser Gly Phe Ser Arg Gly Ile Ala
165 170 175

Lys Tyr Arg Gly Leu Gln Ser Arg Trp Asp Ala Ser Ala Ser Arg Met
180 185 190

Pro Gly Pro Glu Tyr Phe Ser Asn Ile His Tyr Gly Ala Gly Asp Asp
195 200 205

Arg Gly Thr Glu Gly Asp Phe Leu Gly Ser Phe Cys Leu Glu Arg Lys
210 215 220

Ile Asp Leu Thr Gly Tyr Ile Lys Trp Trp Gly Ala Asn Lys Asn Arg
225 230 235 240

Gln Pro Glu Ser Ser Ser Lys Ala Ser Glu Asp Ala Asn Val Glu Asp
245 250 255

Ala Gly Thr Glu Leu Lys Thr Leu Glu His Thr Ser His Ala Thr Glu
260 265 270

Pro Tyr Lys Ala Pro Asn Leu Gly Val Leu Cys Gly Thr Gln Arg Lys
275 280 285

Glu Lys Glu Ile Ser Ser Pro Ser Ser Ser Ser Ala Leu Ser Ile Leu
290 295 300

Ser Gln Ser Pro Ala Phe Lys Ser Leu Glu Glu Lys Val Leu Lys Ile
305 310 315 320

Gln Glu Ser Cys Asn Asn Glu Asn Asp Glu Asn Ala Asn Arg Asn Ile
325 330 335

Ile Asn Met Glu Lys Asn Asn Gly Lys Ala Ile Glu Lys Pro Val Val
340 345 350

Ser His Gly Val Ala Leu Gly Gly Ala Ala Ala Leu Ser Leu Gln Lys
355 360 365

Ser Met Tyr Pro Leu Thr Ser Leu Leu Thr Ala Pro Leu Leu Thr Asn
370 375 380

Tyr Asn Thr Leu Asp Pro Leu Ala Asp Pro Ile Leu Trp Thr Pro Phe
385 390 395 400

Leu Pro Ser Gly Ser Ser Leu Thr Ser Glu Val Thr Lys Thr Glu Thr
405 410 415

Ser Cys Ser Thr Tyr Ser Tyr Leu Pro Gln Glu Lys
420 425

<210> 43 <211> 933 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (20)..(757) <223> G33

<400> 43
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Met Thr Thr Glu Lys Glu Asn Val Thr Thr Ala
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gtg gcc gtg aaa gac gcc gga gaa aag agt aag gaa gtg agt gac aag 100
Val Ala Val Lys Asp Gly Gly Glu Lys Ser Lys Glu Val Ser Asp Lys
15 20 25

ggc gta aag aag aga aag aat gta act aag gcc ctg gcc gtg aat gac 148

Gly Val Lys Lys Arg Lys Asn Val Thr Lys Ala Leu Ala Val Asn Asp	196
30 35 40	
ggc gga gaa aag agt aag gaa gtg cgt tac agg ggt gta agg agg aga	196
Gly Gly Glu Lys Ser Lys Glu Val Arg Tyr Arg Gly Val Arg Arg Arg	
45 50 55	
cca tgg ggg aga tat gct gcg gag atc cgt gat ccg gta aag aaa aaa	244
Pro Trp Gly Arg Tyr Ala Ala Glu Ile Arg Asp Pro Val Lys Lys Lys	
60 65 70 75	
cgg gtc tgg ctc ggg tcc ttc aac acg ggg gag gaa gcc gcc aga gcc	292
Arg Val Trp Leu Gly Ser Phe Asn Thr Gly Glu Ala Ala Arg Ala	
80 85 90	
tac gac tcc gct gcc ata agg ttt cga gga tcg aaa gct act act aac	340
Tyr Asp Ser Ala Ala Ile Arg Phe Arg Gly Ser Lys Ala Thr Thr Asn	
95 100 105	
ttc cct cta atc gga tac tat ggg att tct tcg gcg acg ccg gtg aac	388
Phe Pro Leu Ile Gly Tyr Tyr Gly Ile Ser Ser Ala Thr Pro Val Asn	
110 115 120	
aac aac ctt tcc gag acg gtg agt gat gga aat gcc aac ctc cct ctc	436
Asn Asn Leu Ser Glu Thr Val Ser Asp Gly Asn Ala Asn Leu Pro Leu	
125 130 135	
gtt gga gac gat ggg aat gct ttg gct tct ccg gtg aac aac acc ctt	484
Val Gly Asp Asp Gly Asn Ala Leu Ala Ser Pro Val Asn Asn Thr Leu	
140 145 150 155	
tcc gaa acg gcg cgt gat gga aca ctt cca tcg gat tgt cac gac atg	532
Ser Glu Thr Ala Arg Asp Gly Thr Leu Pro Ser Asp Cys His Asp Met	
160 165 170	
tta tct ccg ggg gtg gct gaa gcg gtt gct gga ttt ttc tta gat ctg	580
Leu Ser Pro Gly Val Ala Glu Ala Val Ala Gly Phe Phe Leu Asp Leu	
175 180 185	
cct gaa gtt att gcg ttg aaa gag gag ctt gat cga gtt tgt cct gac	628
Pro Glu Val Ile Ala Leu Lys Glu Glu Leu Asp Arg Val Cys Pro Asp	
190 195 200	
cag ttt gag tcc att gat atg ggg ttg act att ggt cct caa acc gcc	676
Gln Phe Glu Ser Ile Asp Met Gly Leu Thr Ile Gly Pro Gln Thr Ala	
205 210 215	
gtg gaa gag cct gag act tcc tcc gcc gtg gat tgt aag ctg cga atg	724
Val Glu Glu Pro Glu Thr Ser Ser Ala Val Asp Cys Lys Leu Arg Met	
220 225 230 235	
gaa ccg gat ctt gac ctc aac gca agt ccc taa agattgatct gatgtgtgtg	777
Glu Pro Asp Leu Asp Leu Asn Ala Ser Pro	
240 245	
tccttgtaata agtttgttat cttgtcgtc tcttgattgt ctgtacttct attggttgat	837

tcgtgctttt ggaggacaaa acaaacattt ttttatgtat taaaaaaagg taattgaact 897
attatcgaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 933

<210> 44 <211> 245 <212> PRT <213> Arabidopsis thaliana <400> 44

Met Thr Thr Glu Lys Glu Asn Val Thr Thr Ala Val Ala Val Lys Asp
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Gly Gly Glu Lys Ser Lys Glu Val Ser Asp Lys Gly Val Lys Lys Arg
20 25 30

Lys Asn Val Thr Lys Ala Leu Ala Val Asn Asp Gly Gly Glu Lys Ser
35 40 45

Lys Glu Val Arg Tyr Arg Gly Val Arg Arg Arg Pro Trp Gly Arg Tyr
50 55 60

Ala Ala Glu Ile Arg Asp Pro Val Lys Lys Lys Arg Val Trp Leu Gly
65 70 75 80

Ser Phe Asn Thr Gly Glu Glu Ala Ala Arg Ala Tyr Asp Ser Ala Ala
85 90 95

Ile Arg Phe Arg Gly Ser Lys Ala Thr Thr Asn Phe Pro Leu Ile Gly
100 105 110

Tyr Tyr Gly Ile Ser Ser Ala Thr Pro Val Asn Asn Asn Leu Ser Glu
115 120 125

Thr Val Ser Asp Gly Asn Ala Asn Leu Pro Leu Val Gly Asp Asp Gly
130 135 140

Asn Ala Leu Ala Ser Pro Val Asn Asn Thr Leu Ser Glu Thr Ala Arg
145 150 155 160

Asp Gly Thr Leu Pro Ser Asp Cys His Asp Met Leu Ser Pro Gly Val
165 170 175

Ala Glu Ala Val Ala Gly Phe Phe Leu Asp Leu Pro Glu Val Ile Ala
180 185 190

Leu Lys Glu Glu Leu Asp Arg Val Cys Pro Asp Gln Phe Glu Ser Ile
195 200 205

Asp Met Gly Leu Thr Ile Gly Pro Gln Thr Ala Val Glu Glu Pro Glu
210 215 220

Thr Ser Ser Ala Val Asp Cys Lys Leu Arg Met Glu Pro Asp Leu Asp
225 230 235 240

Leu Asn Ala Ser Pro
245

<210> 45 <211> 754 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (75)..(638) <223> G39

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Met Pro Pro Ser Pro Pro Lys Ser Phe Ile Ser
1 5 10
tct tca ctc aaa gga gct cat gaa gat cgc aaa ttt aaa tgc tat agg 158
Ser Ser Leu Lys Gly Ala His Glu Asp Arg Lys Phe Lys Cys Tyr Arg
15 20 25
ggg gtc cga aag agg tct tgg ggc aaa tgg gtg tct gaa atc aga gtt 206
Gly Val Arg Lys Arg Ser Trp Gly Lys Trp Val Ser Glu Ile Arg Val
30 35 40
cca aag act gga cga cga ata tgg cta ggt tca tac gat gct cca gag 254
Pro Lys Thr Gly Arg Arg Ile Trp Leu Gly Ser Tyr Asp Ala Pro Glu
45 50 55 60
aag gca gct aga gcc tat gat gct gct ttg ttc tgt att agg ggt gag 302
Lys Ala Ala Arg Ala Tyr Asp Ala Ala Leu Phe Cys Ile Arg Gly Glu
65 70 75
aag gga gtt tac aat ttt ccc act gat aaa aag ccg cag ctt cca gaa 350
Lys Gly Val Tyr Asn Phe Pro Thr Asp Lys Lys Pro Gln Thr Ile Pro Glu
80 85 90
ggg tct gtc cgg cct ctg tcc aag ctc gac ata cag aca ata gca aca 398
Gly Ser Val Arg Pro Leu Ser Lys Leu Asp Ile Gln Thr Ile Ala Thr
95 100 105
aac tat gct tca tca gtt gtg cat gta cct tcc cat gcc acc aca ctc 446
Asn Tyr Ala Ser Ser Val Val His Val Pro Ser His Ala Thr Thr Leu
110 115 120
ccg gca aca acc cag gtt ccc tct gaa gtt cct gct tcc tct gat gtt 494
Pro Ala Thr Thr Gln Val Pro Ser Glu Val Pro Ala Ser Ser Asp Val
125 130 135 140
tct gct tct act gag att aca gag atg gtc gat gaa tat tat ctc cca 542

Ser Ala Ser Thr Glu Ile Thr Glu Met Val Asp Glu Tyr Tyr Leu Pro
 145 150 155
 acc gat gca act gca gaa tca ata ttc tca gtt gaa gac tta caa ctg 590
 Thr Asp Ala Thr Ala Glu Ser Ile Phe Ser Val Glu Asp Leu Gln Leu
 160 165 170
 gac agt ttc ctc atg atg gac att gat tgg ata aac aat cta atc tga 638
 Asp Ser Phe Leu Met Met Asp Ile Asp Trp Ile Asn Asn Leu Ile
 175 180 185
 tgtgtaacgt cacttgacgt gacattttaat atggtttaac tatcagttac ctgtctgctt 698
 cttgtaaggg tataacttga tccttgcctt tgaacttggt ttatttagca tgcaaa 754
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 Gly Ala His Glu Asp Arg Lys Phe Lys Cys Tyr Arg Gly Val Arg Lys
 20 25 30
 Arg Ser Trp Gly Lys Trp Val Ser Glu Ile Arg Val Pro Lys Thr Gly
 35 40 45
 Arg Arg Ile Trp Leu Gly Ser Tyr Asp Ala Pro Glu Lys Ala Ala Arg
 50 55 60
 Ala Tyr Asp Ala Ala Leu Phe Cys Ile Arg Gly Glu Lys Gly Val Tyr
 65 70 75 80
 Asn Phe Pro Thr Asp Lys Lys Pro Gln Leu Pro Glu Gly Ser Val Arg
 85 90 95
 Pro Leu Ser Lys Leu Asp Ile Gln Thr Ile Ala Thr Asn Tyr Ala Ser
 100 105 110
 Ser Val Val His Val Pro Ser His Ala Thr Thr Leu Pro Ala Thr Thr
 115 120 125
 Gln Val Pro Ser Glu Val Pro Ala Ser Ser Asp Val Ser Ala Ser Thr
 130 135 140
 Glu Ile Thr Glu Met Val Asp Glu Tyr Tyr Leu Pro Thr Asp Ala Thr
 145 150 155 160

Ala Glu Ser Ile Phe Ser Val Glu Asp Leu Gln Leu Asp Ser Phe Leu
165 170 175

Met Met Asp Ile Asp Trp Ile Asn Asn Leu Ile
180 185

<210> 47 <211> 914 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (37)..(672) <223> G147

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1 5

cag ctt aag agg att gag aac ccg gtt cac aga caa gtg act ttt tgc 102
Gln Leu Lys Arg Ile Glu Asn Pro Val His Arg Gln Val Thr Phe Cys
10 15 20

aag agg aga act ggt ctt ctc aag aag gct aag gag ctc tct gtg ctc 150
Lys Arg Arg Thr Gly Leu Leu Lys Lys Ala Lys Glu Leu Ser Val Leu
25 30 35

tgt gat gcc gag atc ggt gtt gtg atc ttc tct cct cag gcc aag ctc 198
Cys Asp Ala Glu Ile Gly Val Val Ile Phe Ser Pro Gln Gly Lys Leu
40 45 50

ttt gag ctc gct act aaa gga aca atg gag gga atg att gat aag tac 246
Phe Glu Leu Ala Thr Lys Gly Thr Met Glu Gly Met Ile Asp Lys Tyr
55 60 65 70

atg aag tgt act ggt ggt ggt cgt ggt tct tct tct gct act ttt act 294
Met Lys Cys Thr Gly Gly Gly Arg Gly Ser Ser Ser Ala Thr Phe Thr
75 80 85

gct caa gaa caa ctt caa cca cca aat ctt gat ccg aaa gat gag atc 342
Ala Gln Glu Gln Leu Gln Pro Pro Asn Leu Asp Pro Lys Asp Glu Ile
90 95 100

aac gtg ctt aag caa gag att gag atg ctt cag aaa ggg ata agc tat 390
Asn Val Leu Lys Gln Glu Ile Glu Met Leu Gln Lys Gly Ile Ser Tyr
105 110 115

atg ttt gga gga gat ggg gct atg aat ctt gaa gaa ctt ctt ttg 438
Met Phe Gly Gly Gly Asp Gly Ala Met Asn Leu Glu Glu Leu Leu Leu
120 125 130

ctt gag aag cat ctt gag tat tgg att tct cag att cgc tct gct aag 486
Leu Glu Lys His Leu Glu Tyr Trp Ile Ser Ile Arg Ser Ala Lys
135 140 145 150

atg gat gtt atg ctt caa gaa att cag tca ttg agg aac aag gaa gga 534
Met Asp Val Met Leu Gln Glu Ile Gln Ser Leu Arg Asn Lys Glu Gly
155 160 165

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gtc ctc aaa aac acc aac aag tat ctc ctc gac aag ata gag gaa aac 582
Val Leu Lys Asn Thr Asn Lys Tyr Leu Leu Asp Lys Ile Glu Glu Asn
170 175 180

aac aat agc ata tta gat gct aac ttc gca gtc atg gag aca aac tat 630
Asn Asn Ser Ile Leu Asp Ala Asn Phe Ala Val Met Glu Thr Asn Tyr
185 190 195

tcc tat ccg cta aca atg cca agt gaa ata ttt cag ttc tag 672
Ser Tyr Pro Leu Thr Met Pro Ser Glu Ile Phe Gln Phe
200 205 210

accatagggg atttgaagac tatgtctcac gaatttaaata aaccttggtta agtataatat 732

agtgttggtta aatcacacat aattaaaata aagcctgtgg aacttcgcta ggcagttgaa 792

aatcatatccg tatgttttat cctcttggtt tacatttggtt ggtgtgaaga tgaatgact 852

gcaagtggtg tgtgtactta taactctttc tactttctat ctatgttttg aatttatgga 912

tt 914

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Arg Gln Val Thr Phe Cys Lys Arg Arg Thr Gly Leu Leu Lys Lys Ala
20 25 30

Lys Glu Leu Ser Val Leu Cys Asp Ala Glu Ile Gly Val Val Ile Phe
35 40 45

Ser Pro Gln Gly Lys Leu Phe Glu Leu Ala Thr Lys Gly Thr Met Glu
50 55 60

Gly Met Ile Asp Lys Tyr Met Lys Cys Thr Gly Gly Gly Arg Gly Ser
65 70 75 80

Ser Ser Ala Thr Phe Thr Ala Gln Glu Gln Leu Gln Pro Pro Asn Leu
85 90 95

Asp Pro Lys Asp Glu Ile Asn Val Leu Lys Gln Glu Ile Glu Met Leu
100 105 110

Gln Lys Gly Ile Ser Tyr Met Phe Gly Gly Gly Asp Gly Ala Met Asn
115 120 125

```

Leu Glu Glu Leu Leu Leu Leu Glu Lys His Leu Glu Tyr Trp Ile Ser
130 135 140

Gln Ile Arg Ser Ala Lys Met Asp Val Met Leu Gln Glu Ile Gln Ser
145 150 155 160

Leu Arg Asn Lys Glu Gly Val Leu Lys Asn Thr Asn Lys Tyr Leu Leu
165 170 175

Asp Lys Ile Glu Glu Asn Asn Asn Ser Ile Leu Asp Ala Asn Phe Ala
180 185 190

Val Met Glu Thr Asn Tyr Ser Tyr Pro Leu Thr Met Pro Ser Glu Ile
195 200 205

Phe Gln Phe
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ttttgatatt ttgtgttggg ttgaagagaa gaatagttaa ttgatgtttt gtgaagaaga 120
agaagaagag attttgattt tggtttaata tatagttggg gattaacagg atg gga 176
Met Gly
1

agg gta aaa ttg aag ata aag aag tta gag aac aca aat gga cgc caa 224
Arg Val Lys Leu Lys Ile Lys Lys Leu Glu Asn Thr Asn Gly Arg Gln
5 10 15

tct aca ttt gct aaa agg aaa aat ggg atc ttg aaa aag gct aat gag 272
Ser Thr Phe Ala Lys Arg Lys Asn Gly Ile Leu Lys Lys Ala Asn Glu
20 25 30

cta tct att ctt tgt gac att gat att gtt ctt ctt atg ttc tct cct 320
Leu Ser Ile Leu Cys Asp Ile Asp Ile Val Leu Leu Met Phe Ser Pro
35 40 45 50

act ggc aag gct gca ata tgt tgc ggt aca cga aga tgt ttc tct ttc 368
Thr Gly Lys Ala Ala Ile Cys Cys Gly Thr Arg Arg Cys Phe Ser Phe
55 60 65

gaa agc tca gaa ctt gaa gaa aac ttt cca aaa gtt gga tca cga tgt 416
Glu Ser Ser Glu Leu Glu Glu Asn Phe Pro Lys Val Gly Ser Arg Cys
70 75 80

aaa tat acg cga att tat agc ctc aag gac ttg agt act caa gca agg 464

Lys Tyr Thr Arg Ile Tyr Ser Leu Lys Asp Leu Ser Thr Gln Ala Arg	
85 90 95	
att ctg cag gct cgg att tct gag ata cat gga aga tta agt tat tgg	512
Ile Leu Gln Ala Arg Ile Ser Glu Ile His Gly Arg Leu Ser Tyr Trp	
100 105 110	
acg gaa cca gat aag att aac aat gtt gaa cac ttg gga cag ctc gaa	560
Thr Glu Pro Asp Lys Ile Asn Asn Val Glu His Leu Gly Gln Leu Glu	
115 120 125 130	
att tcg att agg caa tcc ctt gat caa ttg cgt gca cac aag atg caa	608
Ile Ser Ile Arg Gln Ser Leu Asp Gln Leu Arg Ala His Lys Met Gln	
135 140 145	
gat ggg att cag att cct tta gaa caa cag ctt caa tct atg tca tgg	656
Asp Gly Ile Gln Ile Pro Leu Glu Gln Leu Gln Ser Met Ser Trp	
150 155 160	
att ctt aat agc aac acc acc aac att gtc acc gag gaa cac aat tca	704
Ile Leu Asn Ser Asn Thr Thr Asn Ile Val Thr Glu Glu His Asn Ser	
165 170 175	
atc ccg cag agg gaa gtc gag tgc tca gcg agt tct tca ttc ggg agc	752
Ile Pro Gln Arg Glu Val Glu Cys Ser Ala Ser Ser Ser Phe Gly Ser	
180 185 190	
tat cca ggc tac ttt gga aca ggg aaa tct cct gaa atg aca att ccg	800
Tyr Pro Gly Tyr Phe Gly Thr Gly Lys Ser Pro Glu Met Thr Ile Pro	
195 200 205 210	
ggc caa gaa aca agc ttt ctt gat gaa cta aac acc gga cag ctg aaa	848
Gly Gln Glu Thr Ser Phe Leu Asp Glu Leu Asn Thr Gly Gln Leu Lys	
215 220 225	
cag gac aca agc tcg cag cag cag ttc act aat aat aat aat atc aca	896
Gln Asp Thr Ser Ser Gln Gln Gln Phe Thr Asn Asn Asn Ile Thr	
230 235 240	
gca tac aat ccc aat ctt cac aat gat atg aat cat cac caa acg ttg	944
Ala Tyr Asn Pro Asn Leu His Asn Asp Met Asn His His Gln Thr Leu	
245 250 255	
cct cct cct cct ctt cct ctt act ctt ccg cat gct cag gtg tat att	992
Pro Pro Pro Pro Leu Pro Leu Thr Leu Pro His Ala Gln Val Tyr Ile	
260 265 270	
cca atg aat cag aga gag tat cat atg aat gga ttc ttt gaa gca cca	1040
Pro Met Asn Gln Arg Glu Tyr His Met Asn Gly Phe Phe Glu Ala Pro	
275 280 285 290	
cca cct gat tct tct gct tac aac gac aac acc aac caa acc agg ttt	1088
Pro Pro Asp Ser Ser Ala Tyr Asn Asp Asn Thr Asn Gln Thr Arg Phe	
295 300 305	
ggc tct agc agc agc tcc ttg cct tgc tca atc tca atg ttc gac gaa	1136
Gly Ser Ser Ser Ser Ser Leu Pro Cys Ser Ile Ser Met Phe Asp Glu	

	310	315	320	
	tac ttg ttt tcc cag atg cag cag ccg aac tga gagagatttg atgaatgatg			1189
	Tyr Leu Phe Ser Gln Met Gln Gln Pro Asn			
	325	330		
	ataaaacatc tcaactgaaga aactcaaacc aatatttttt ttcagaaaca goaagaaagc			1249
	taaaactctg ccgatttctg aattgggtcc aagaagaaaa aaaccagtgg taatccctgg			1309
	tagattgtgc aaccaaacca cacacaatac gtgttcattt attttttcta tatcttcaat			1369
	agatgtcaact taattctttt ctatacataa tttctcagtc agaatt			1414
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	Asn Glu Leu Ser Ile Leu Cys Asp Ile Asp Ile Val Leu Leu Met Phe			
	35 40 45			
	Ser Pro Thr Gly Lys Ala Ala Ile Cys Cys Gly Thr Arg Arg Cys Phe			
	50 55 60			
	Ser Phe Glu Ser Ser Glu Leu Glu Glu Asn Phe Pro Lys Val Gly Ser			
	65 70 75 80			
	Arg Cys Lys Tyr Thr Arg Ile Tyr Ser Leu Lys Asp Leu Ser Thr Gln			
	85 90 95			
	Ala Arg Ile Leu Gln Ala Arg Ile Ser Glu Ile His Gly Arg Leu Ser			
	100 105 110			
	Tyr Trp Thr Glu Pro Asp Lys Ile Asn Asn Val Glu His Leu Gly Gln			
	115 120 125			
	Leu Glu Ile Ser Ile Arg Gln Ser Leu Asp Gln Leu Arg Ala His Lys			
	130 135 140			
	Met Gln Asp Gly Ile Gln Ile Pro Leu Glu Gln Gln Leu Gln Ser Met			
	145 150 155 160			

Ser Trp Ile Leu Asn Ser Asn Thr Thr Asn Ile Val Thr Glu Glu His
165 170 175

Asn Ser Ile Pro Gln Arg Glu Val Glu Cys Ser Ala Ser Ser Ser Phe
180 185 190

Gly Ser Tyr Pro Gly Tyr Phe Gly Thr Gly Lys Ser Pro Glu Met Thr
195 200 205

Ile Pro Gly Gln Glu Thr Ser Phe Leu Asp Glu Leu Asn Thr Gly Gln
210 215 220

Leu Lys Gln Asp Thr Ser Ser Gln Gln Gln Phe Thr Asn Asn Asn Asn
225 230 235 240

Ile Thr Ala Tyr Asn Pro Asn Leu His Asn Asp Met Asn His His Gln
245 250 255

Thr Leu Pro Pro Pro Pro Leu Pro Leu Thr Leu Pro His Ala Gln Val
260 265 270

Tyr Ile Pro Met Asn Gln Arg Glu Tyr His Met Asn Gly Phe Phe Glu
275 280 285

Ala Pro Pro Pro Asp Ser Ser Ala Tyr Asn Asp Asn Thr Asn Gln Thr
290 295 300

Arg Phe Gly Ser Ser Ser Ser Ser Leu Pro Cys Ser Ile Ser Met Phe
305 310 315 320

Asp Glu Tyr Leu Phe Ser Gln Met Gln Gln Pro Asn
325 330

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ggt cgt cag aaa ata gag atg aaa aaa atg gaa aac gaa agc aac ctt 103
Gly Arg Gln Lys Ile Glu Met Lys Lys Met Glu Asn Glu Ser Asn Leu
10 15 20

cag gtt act ttc tca aaa aga aga ttc ggt ctt ttc aaa aaa gct agt 151

Gln Val Thr Phe Ser Lys Arg Arg Phe Gly Leu Phe Lys Lys Ala Ser	
25 30 35	
gaa ott tgc aca tta agt ggt gca gag att ctg ttg att gtg ttc tct	199
Glu Leu Cys Thr Leu Ser Gly Ala Glu Ile Leu Leu Ile Val Phe Ser	
40 45 50	
cct ggt ggg aaa gtg ttt tct ttt ggc cat cca agt gtt caa gaa ctc	247
Pro Gly Gly Lys Val Phe Ser Phe Gly His Pro Ser Val Gln Glu Leu	
55 60 65 70	
att cat cgc ttt tcg aat cct aac cat aat tct gcc att gtc cat cat	295
Ile His Arg Phe Ser Asn Pro Asn His Asn Ser Ala Ile Val His His	
75 80 85	
cag aac aac aat ctc caa ctt gtt gaa acc cgt ccg gat aga aat atc	343
Gln Asn Asn Asn Leu Gln Leu Val Glu Thr Arg Pro Asp Arg Asn Ile	
90 95 100	
caa tat ctc aac aat ata ctc act gag gtg ctg gca aac cag gaa aag	391
Gln Tyr Leu Asn Asn Ile Leu Thr Glu Val Leu Ala Asn Gln Glu Lys	
105 110 115	
gag aaa cag aag aga atg gtt ttg gac cta ttg aaa gaa tcc aga gaa	439
Glu Lys Gln Lys Arg Met Val Leu Asp Leu Leu Lys Glu Ser Arg Glu	
120 125 130	
caa gta gga aac tgg tat gaa aaa gat gtg aaa gat ctc gac atg aat	487
Gln Val Gly Asn Trp Tyr Glu Lys Asp Val Lys Asp Leu Asp Met Asn	
135 140 145 150	
gaa acc aac cag ctg ata tct gct ctt caa gat gtg aaa aag aaa ctg	535
Glu Thr Asn Gln Leu Ile Ser Ala Leu Gln Asp Val Lys Lys Lys Leu	
155 160 165	
gta aga gaa atg tct caa tat tct caa gta aat gtt tcg cag aat tac	583
Val Arg Glu Met Ser Gln Tyr Ser Gln Val Asn Val Ser Gln Asn Tyr	
170 175 180	
ttt ggt caa agt tct ggc gtg att ggt ggt ggt aat gtt ggc att gat	631
Phe Gly Gln Ser Ser Gly Val Ile Gly Gly Gly Asn Val Gly Ile Asp	
185 190 195	
ctt ttt gat caa aga aga aat gca ttc aac tat aat cca aac atg gtg	679
Leu Phe Asp Gln Arg Arg Asn Ala Phe Asn Tyr Asn Pro Asn Met Val	
200 205 210	
ttt ccc aat cat aca cca cca atg ttt gga tac aac aat gat gga gtt	727
Phe Pro Asn His Thr Pro Pro Met Phe Gly Tyr Asn Asn Asp Gly Val	
215 220 225 230	
ctc gtt ccg ata tcc aac atg aac tac atg tca agt tac aac ttc aac	775
Leu Val Pro Ile Ser Asn Met Asn Tyr Met Ser Ser Tyr Asn Phe Asn	
235 240 245	
cag agc tag agtctgaagc tagaagaaca tcctaatacaa tattttgcgtt	824
Gln Ser	

attttggcta tggttactgt taggattgtt ctgtattgt gagacttaag tttgtttttt 884
 cttttaattt gtttcagttg gttggttttt cattttattc gtcgtttgtt ttcotttgtt 944
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Met Val Arg Ser Thr Lys Gly Arg Gln Lys Ile Glu Met Lys Lys Met
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 20 25 30

Leu Phe Lys Lys Ala Ser Glu Leu Cys Thr Leu Ser Gly Ala Glu Ile
 35 40 45

Leu Leu Ile Val Phe Ser Pro Gly Gly Lys Val Phe Ser Phe Gly His
 50 55 60

Pro Ser Val Gln Glu Leu Ile His Arg Phe Ser Asn Pro Asn His Asn
 65 70 75 80

Ser Ala Ile Val His His Gln Asn Asn Asn Leu Gln Leu Val Glu Thr
 85 90 95

Arg Pro Asp Arg Asn Ile Gln Tyr Leu Asn Asn Ile Leu Thr Glu Val
 100 105 110

Leu Ala Asn Gln Glu Lys Glu Lys Gln Lys Arg Met Val Leu Asp Leu
 115 120 125

Leu Lys Glu Ser Arg Glu Gln Val Gly Asn Trp Tyr Glu Lys Asp Val
 130 135 140

Lys Asp Leu Asp Met Asn Glu Thr Asn Gln Leu Ile Ser Ala Leu Gln
 145 150 155 160

Asp Val Lys Lys Lys Leu Val Arg Glu Met Ser Gln Tyr Ser Gln Val
 165 170 175

Asn Val Ser Gln Asn Tyr Phe Gly Gln Ser Ser Gly Val Ile Gly Gly
 180 185 190

Gly Asn Val Gly Ile Asp Leu Phe Asp Gln Arg Arg Asn Ala Phe Asn
195 200 205

Tyr Asn Pro Asn Met Val Phe Pro Asn His Thr Pro Pro Met Phe Gly
210 215 220

Tyr Asn Asn Asp Gly Val Leu Val Pro Ile Ser Asn Met Asn Tyr Met
225 230 235 240

Ser Ser Tyr Asn Phe Asn Gln Ser
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aac ttc ctc gtt cct ttt gaa gaa acc aat gtc tta acc ttt ttc tct 104
Asn Phe Leu Val Pro Phe Glu Glu Thr Asn Val Leu Thr Phe Phe Ser
5 10 15

tct tct tct tcc tct tct ctt tct tct cct tct ttc ccc att cac aac 152
Ser Ser Ser Ser Ser Ser Leu Ser Ser Pro Ser Phe Pro Ile His Asn
20 25 30

tct tcc tcc act act act act cat gca cct cta ggg ttt tct aat aat 200
Ser Ser Ser Thr Thr Thr Thr His Ala Pro Leu Gly Phe Ser Asn Asn
35 40 45

ctt cag ggt gga gga ccc ttg gga tca aag gtg gtt aat gat gat cag 248
Leu Gln Gly Gly Gly Pro Leu Gly Ser Lys Val Val Asn Asp Asp Gln
50 55 60 65

gag aat ttt gga ggt gga act aac aat gat gct cat tct aat tct tgg 296
Glu Asn Phe Gly Gly Gly Thr Asn Asn Asp Ala His Ser Asn Ser Trp
70 75 80

tgg aga tca aat agt gga agt gga gat atg aag aac aaa gtg aag ata 344
Trp Arg Ser Asn Ser Gly Ser Gly Asp Met Lys Asn Lys Val Lys Ile
85 90 95

agg agg aaa cta aga gag cca aga ttc tgt ttc caa acc aaa agc gat 392
Arg Arg Lys Leu Arg Glu Pro Arg Phe Cys Phe Gln Thr Lys Ser Asp
100 105 110

gtt gat gtt ctt gac gat ggc tac aaa tgg cgt aaa tat ggt cag aaa 440
Val Asp Val Leu Asp Asp Gly Tyr Lys Trp Arg Lys Tyr Gly Gln Lys
115 120 125

gtc gtc aag aac agc ctt cac ccc agg agt tat tac aga tgc aca cac 488
 Val Val Lys Asn Ser Leu His Pro Arg Ser Tyr Tyr Arg Cys Thr His
 130 135 140 145
 aac aac tgt agg gtg aaa aag aga gtg gag cga cta tcg gaa gat tgt 536
 Asn Asn Cys Arg Val Lys Lys Arg Val Glu Arg Leu Ser Glu Asp Cys
 150 155 160
 aga atg gtg att act act tac gaa ggt cgt cac aac cac att ccc tct 584
 Arg Met Val Ile Thr Thr Tyr Glu Gly Arg His Asn His Ile Pro Ser
 165 170 175
 gat gac tcc act tct cct gac cat gat tgt ctc tct tcc ttt taa 629
 Asp Asp Ser Thr Ser Pro Asp His Asp Cys Leu Ser Ser Phe
 180 185 190
 catctcttttc tatatatcta tatatagaca gttatatgtg cacatataga tgtgtgatat 689
 attgcatatt tgatattgca tgtgtttttc aagagtatgt catcagatgt tatgcatata 749
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 20 25 30
 Asn Ser Ser Ser Thr Thr Thr Thr His Ala Pro Leu Gly Phe Ser Asn
 35 40 45
 Asn Leu Gln Gly Gly Gly Pro Leu Gly Ser Lys Val Val Asn Asp Asp
 50 55 60
 Gln Glu Asn Phe Gly Gly Gly Thr Asn Asn Asp Ala His Ser Asn Ser
 65 70 75 80
 Trp Trp Arg Ser Asn Ser Gly Ser Gly Asp Met Lys Asn Lys Val Lys
 85 90 95
 Ile Arg Arg Lys Leu Arg Glu Pro Arg Phe Cys Phe Gln Thr Lys Ser
 100 105 110
 Asp Val Asp Val Leu Asp Asp Gly Tyr Lys Trp Arg Lys Tyr Gly Gln

115

120

125

Lys Val Val Lys Asn Ser Leu His Pro Arg Ser Tyr Tyr Arg Cys Thr
130 135 140

His Asn Asn Cys Arg Val Lys Lys Arg Val Glu Arg Leu Ser Glu Asp
145 150 155 160

Cys Arg Met Val Ile Thr Thr Tyr Glu Gly Arg His Asn His Ile Pro
165 170 175

Ser Asp Asp Ser Thr Ser Pro Asp His Asp Cys Leu Ser Ser Phe
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gaa aac aac aac acc ttc tct tcc ttt gta gac aaa acc cta atg atg 97
Glu Asn Asn Asn Thr Phe Ser Ser Phe Val Asp Lys Thr Leu Met Met
20 25 30

atg cct cca tca aca ttt tcc ggt gaa gtg gaa cct tca tct tct tct 145
Met Pro Pro Ser Thr Phe Ser Gly Glu Val Glu Pro Ser Ser Ser Ser
35 40 45

tct tgg tat cca gaa agc ttt cat gtg cat gcg cgg cca tta cca cct 193
Ser Trp Tyr Pro Glu Ser Phe His Val His Ala Pro Pro Leu Pro Pro
50 55 60

gag aat gat caa ata ggt gag aaa ggg aag gag ctg aaa gag aag aga 241
Glu Asn Asp Gln Ile Gly Glu Lys Gly Lys Glu Lys Glu Lys Arg
65 70 75

tcg agg aaa gtt cca agg att gcg ttt cat acg agg agc gat gat gat 289
Ser Arg Lys Val Pro Arg Ile Ala Phe His Thr Arg Ser Asp Asp Asp
80 85 90 95

gtt ctg gat gat ggt tat cgt tgg cga aaa tat ggg cag aaa tct gtc 337
Val Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Ser Val
100 105 110

aag cac aat gct cat ccc agg agc tat tac aga tgt acg tac cac aca 385
Lys His Asn Ala His Pro Arg Ser Tyr Tyr Arg Cys Thr Tyr His Thr
115 120 125

tgc aac gtg aag aaa caa gtg cag aga ttg gca aaa gat cca aac gtc 433
Cys Asn Val Lys Lys Gln Val Gln Arg Leu Ala Lys Asp Pro Asn Val

130	135	140	
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Val Val Thr Thr Tyr Glu Gly Val His Asn His Pro Cys Glu Lys Leu			
145	150	155	
atg gag act ctt aat cct ctt ctc agg caa ctc cag ttc ctc tcc agt			529
Met Glu Thr Leu Asn Pro Leu Leu Arg Gln Leu Gln Phe Leu Ser Ser			
160	165	170	175
ttc tct aat ctt tga atatataatg gcttaattaa tgggtgaatt acttaaagg			584
Phe Ser Asn Leu			
gattaagggtg ttaatcacc cactgacogt ttgacgaccc acatctccca agtgacaagt			644
cacaagtgtg tagatcagat tttaaaccaa tgtaacagtt acgacttttt acaaatgttt			704
ctgaatttta tccctgtatt tctggttaat gatcggttta cgccgatgat ttgacaaata			764
ccagacaaaa caagttagt tacatatgta agtatgaaaa ggtagtttcc tctaacttca			824
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20 25 30			
Pro Pro Ser Thr Phe Ser Gly Glu Val Glu Pro Ser Ser Ser Ser			
35 40 45			
Trp Tyr Pro Glu Ser Phe His Val His Ala Pro Pro Leu Pro Pro Glu			
50 55 60			
Asn Asp Gln Ile Gly Glu Lys Gly Lys Glu Leu Lys Glu Lys Arg Ser			
65 70 75 80			
Arg Lys Val Pro Arg Ile Ala Phe His Thr Arg Ser Asp Asp Val			
85 90 95			
Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Ser Val Lys			
100 105 110			
His Asn Ala His Pro Arg Ser Tyr Tyr Arg Cys Thr Tyr His Thr Cys			
115 120 125			

Asn Val Lys Lys Gln Val Gln Arg Leu Ala Lys Asp Pro Asn Val Val
130 135 140

Val Thr Thr Tyr Glu Gly Val His Asn His Pro Cys Glu Lys Leu Met
145 150 155 160

Glu Thr Leu Asn Pro Leu Leu Arg Gln Leu Gln Phe Leu Ser Ser Phe
165 170 175

Ser Asn Leu

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<222> (327)..(1937) <223> G184

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ataaccacat aatttaatac aactctttct ctctctttct aagatctttt gctttgctct 120

tttccttttt gatcttctta tatatggaga agcaccaaaa cggtacttac tatacgatac 180

tgtacggatc catcaaaactg gattaattat caaaacgtac atttttatct tacctggcaa 240

gttacattcc tagggttttg gagaatccaa tcaacaacaa agaaaataat catcggtaca 300

ataatcagta tcacgcacag acttag atg ttc cgg ttt cca gtg agt cta ggc 353
Met Phe Arg Phe Pro Val Ser Leu Gly
1 5

ggg tca cgt gac gaa gac cgt cac gat cag atc aca cgg ttg gat gac 401
Gly Ser Arg Asp Glu Asp Arg His Asp Gln Ile Thr Pro Leu Asp Asp
10 15 20 25

cat cgt gtg gtg gtt gat gag gtt gac ttc ttc tca gag aag aga gat 449
His Arg Val Val Val Asp Glu Val Asp Phe Phe Ser Glu Lys Arg Asp
30 35 40

agg gtt tca cgt gag aac atc aac gac gac gac gac gaa ggc aat aag 497
Arg Val Ser Arg Glu Asn Ile Asn Asp Asp Asp Glu Gly Asn Lys
45 50 55

gtt ctc atc aaa atg gag ggt tca cga gtt gaa gaa aac gat cgt tcc 545
Val Leu Ile Lys Met Glu Gly Ser Arg Val Glu Glu Asn Asp Arg Ser
60 65 70

aga gat gtc aat atc ggt ctg aat ctt ctg acc gcg aat acg gga agc 593
Arg Asp Val Asn Ile Gly Leu Asn Leu Leu Thr Ala Asn Thr Gly Ser
75 80 85

gat gag tca acg gtg gat gat gga cta tca atg gat atg gaa gat aaa 641

Asp	Glu	Ser	Thr	Val	Asp	Asp	Gly	Leu	Ser	Met	Asp	Met	Glu	Asp	Lys	
90					95					100					105	
cgt	gca	aag	att	gag	aac	gca	caa	cta	caa	gaa	gag	ctc	aag	aag	atg	689
Arg	Ala	Lys	Ile	Glu	Asn	Ala	Gln	Leu	Gln	Glu	Glu	Leu	Lys	Lys	Met	
				110				115						120		
aaa	ata	gag	aat	caa	agg	cta	aga	gat	atg	ttg	agc	caa	gcg	acg	acc	737
Lys	Ile	Glu	Asn	Gln	Arg	Leu	Arg	Asp	Met	Leu	Ser	Gln	Ala	Thr	Thr	
				125				130						135		
aac	ttc	aat	gcc	tta	caa	atg	caa	ctt	gtt	gcc	gtc	atg	agg	caa	caa	785
Asn	Phe	Asn	Ala	Leu	Gln	Met	Gln	Leu	Val	Ala	Val	Met	Arg	Gln	Gln	
				140				145						150		
gaa	caa	cgt	aac	tct	tca	caa	gat	cat	ctc	ctg	gag	agc	aaa	gca	gaa	833
Glu	Gln	Arg	Asn	Ser	Ser	Gln	Asp	His	Leu	Leu	Glu	Ser	Lys	Ala	Glu	
				155				160								
gga	agg	aaa	cgg	cag	gaa	ctg	caa	atc	atg	gtg	cca	agg	cag	ttc	atg	881
Gly	Arg	Lys	Arg	Gln	Glu	Leu	Gln	Ile	Met	Val	Pro	Arg	Gln	Phe	Met	
				170				175						185		
gac	ctt	ggg	ccg	tcg	tct	gga	gca	gca	gag	cat	gga	gcc	gaa	gtg	tca	929
Asp	Leu	Gly	Pro	Ser	Ser	Gly	Ala	Ala	Glu	His	Gly	Ala	Glu	Val	Ser	
				190					195					200		
tct	gaa	gag	agg	aca	acg	gtt	cgt	tca	ggt	tct	cct	cct	tcg	ctt	cta	977
Ser	Glu	Glu	Arg	Thr	Thr	Val	Arg	Ser	Gly	Ser	Pro	Pro	Ser	Leu	Leu	
				205				210						215		
gaa	agt	tcc	aat	ccc	cga	gag	aac	gga	aag	agg	ttg	ctt	gga	aga	gaa	1025
Glu	Ser	Ser	Asn	Pro	Arg	Glu	Asn	Gly	Lys	Arg	Leu	Leu	Ser	Gly	Arg	
				220				225						230		
gaa	agc	tca	gag	gaa	tca	gag	tct	aac	gcc	tggt	gga	aac	cct	aac	aaa	1073
Glu	Ser	Ser	Glu	Glu	Ser	Glu	Ser	Asn	Ala	Trp	Gly	Asn	Pro	Asn	Lys	
				235				240								
gtc	ccc	aaa	cat	aat	cca	tcc	tct	agc	aat	agc	aat	gga	aac	aga	aac	1121
Val	Pro	Lys	His	Asn	Pro	Ser	Ser	Ser	Asn	Ser	Asn	Gly	Asn	Arg	Asn	
				250				255						265		
gga	aat	gtt	att	gat	cag	tcg	gcc	gca	gaa	gcc	acc	atg	cgg	aaa	gcc	1169
Gly	Asn	Val	Ile	Asp	Gln	Ser	Ala	Ala	Glu	Ala	Thr	Met	Arg	Lys	Ala	
				270				275						280		
cgt	gtc	tca	gtt	cgt	gcc	cga	tct	gaa	gct	gcc	atg	ata	agc	gat	gga	1217
Arg	Val	Ser	Val	Arg	Ala	Arg	Ser	Glu	Ala	Ala	Met	Ile	Ser	Asp	Gly	
				285				290						295		
tgt	caa	tggt	aga	aag	tac	gga	caa	aaa	atg	gct	aaa	gga	aac	ccg	tgt	1265
Cys	Gln	Trp	Arg	Lys	Tyr	Gly	Gln	Lys	Met	Ala	Lys	Gly	Asn	Pro	Cys	
				300				305						310		
ccg	cgg	gct	tat	tat	cgt	tgc	aca	atg	gcc	ggt	gga	tgt	cca	gtt	cgc	1313
Pro	Arg	Ala	Tyr	Tyr	Arg	Cys	Thr	Met	Ala	Gly	Gly	Cys	Pro	Val	Arg	

315	320	325	
aag caa gtg cag cgt tgc gca gaa gac aga tct att ctc ata acc acc Lys Gln Val Gln Arg Cys Ala Glu Asp Arg Ser Ile Leu Ile Thr Thr 330 335 340 345			1361
tac gaa gga aac cac aac cat cca ctc cca cca gcc gct acg gcc atg Tyr Glu Gly Asn His Asn His Pro Leu Pro Pro Ala Ala Thr Ala Met 350 355 360			1409
gcc tca aca acc acc gca gct gca agc atg ctc ctc tcg ggc tca atg Ala Ser Thr Thr Thr Ala Ala Ala Ser Met Leu Leu Ser Gly Ser Met 365 370 375			1457
tcg agt caa gac ggt tta atg aac cca aca aac ctc cta gct cga gct Ser Ser Gln Asp Gly Leu Met Asn Pro Thr Asn Leu Leu Ala Arg Ala 380 385 390			1505
atc ttg cct tgc tcc tca agc atg gct aca atc tca gcc tcc gca cca Ile Leu Pro Cys Ser Ser Ser Met Ala Thr Ile Ser Ala Ser Ala Pro 395 400 405			1553
ttc cca acc atc aca ttg gac ctc acc aat tca ccc aac ggt aac aac Phe Pro Thr Ile Thr Leu Asp Leu Thr Asn Ser Pro Asn Gly Asn Asn 410 415 420 425			1601
cct aat atg acc act aat aac ccg ttg atg cag ttc gct caa cgg ccc Pro Asn Met Thr Thr Asn Asn Pro Leu Met Gln Phe Ala Gln Arg Pro 430 435 440			1649
ggt ttc aac ccg gca gtt ttg cct caa gtg gtt ggt caa gct atg tac Gly Phe Asn Pro Ala Val Leu Pro Gln Val Val Gly Gln Ala Met Tyr 445 450 455			1697
aat aac caa caa cag tcc aag ttt tct ggt tta cag tta ccg gct cag Asn Asn Gln Gln Gln Ser Lys Phe Ser Gly Leu Gln Leu Pro Ala Gln 460 465 470			1745
cca ctg cag atc gcg gcc act tcc tcg gtg gcc gag agc gtt agt gct Pro Leu Gln Ile Ala Ala Thr Ser Ser Val Ala Glu Ser Val Ser Ala 475 480 485			1793
gcc agt gca gca att gcg tcc gat cca aac ttt gcg gcg gct cta gcg Ala Ser Ala Ala Ile Ala Ser Asp Pro Asn Phe Ala Ala Ala Leu Ala 490 495 500 505			1841
gca gcg atc acg tcc att atg aac ggt tcc agt cat caa aat aat aac Ala Ala Ile Thr Ser Ile Met Asn Gly Ser Ser His Gln Asn Asn Asn 510 515 520			1889
acc aat aat aat aat gtg gct acg agc aac aat gac agt agg caa taa Thr Asn Asn Asn Asn Val Ala Thr Ser Asn Asn Asp Ser Arg Gln 525 530 535			1937
gagttttcat ttgatgtgc gatttttttt ttgtggg			1974

<210> 58 <211> 536 <212> PRT <213> Arabidopsis thaliana <400> 58

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His Asp Gln Ile Thr Pro Leu Asp Asp His Arg Val Val Val Asp Glu
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Val Asp Phe Phe Ser Glu Lys Arg Asp Arg Val Ser Arg Glu Asn Ile
35 40 45

Asn Asp Asp Asp Asp Glu Gly Asn Lys Val Leu Ile Lys Met Glu Gly
50 55 60

Ser Arg Val Glu Glu Asn Asp Arg Ser Arg Asp Val Asn Ile Gly Leu
65 70 75 80

Asn Leu Leu Thr Ala Asn Thr Gly Ser Asp Glu Ser Thr Val Asp Asp
85 90 95

Gly Leu Ser Met Asp Met Glu Asp Lys Arg Ala Lys Ile Glu Asn Ala
100 105 110

Gln Leu Gln Glu Glu Leu Lys Lys Met Lys Ile Glu Asn Gln Arg Leu
115 120 125

Arg Asp Met Leu Ser Gln Ala Thr Thr Asn Phe Asn Ala Leu Gln Met
130 135 140

Gln Leu Val Ala Val Met Arg Gln Gln Glu Gln Arg Asn Ser Ser Gln
145 150 155 160

Asp His Leu Leu Glu Ser Lys Ala Glu Gly Arg Lys Arg Gln Glu Leu
165 170 175

Gln Ile Met Val Pro Arg Gln Phe Met Asp Leu Gly Pro Ser Ser Gly
180 185 190

Ala Ala Glu His Gly Ala Glu Val Ser Ser Glu Glu Arg Thr Thr Val
195 200 205

Arg Ser Gly Ser Pro Pro Ser Leu Leu Glu Ser Ser Asn Pro Arg Glu
210 215 220

Asn Gly Lys Arg Leu Leu Gly Arg Glu Glu Ser Ser Glu Glu Ser Glu
225 230 235 240

Ser Asn Ala Trp Gly Asn Pro Asn Lys Val Pro Lys His Asn Pro Ser
245 250 255

Ser Ser Asn Ser Asn Gly Asn Arg Asn Gly Asn Val Ile Asp Gln Ser
260 265 270

Ala Ala Glu Ala Thr Met Arg Lys Ala Arg Val Ser Val Arg Ala Arg
275 280 285

Ser Glu Ala Ala Met Ile Ser Asp Gly Cys Gln Trp Arg Lys Tyr Gly
290 295 300

Gln Lys Met Ala Lys Gly Asn Pro Cys Pro Arg Ala Tyr Tyr Arg Cys
305 310 315 320

Thr Met Ala Gly Gly Cys Pro Val Arg Lys Gln Val Gln Arg Cys Ala
325 330 335

Glu Asp Arg Ser Ile Leu Ile Thr Thr Tyr Glu Gly Asn His Asn His
340 345 350

Pro Leu Pro Pro Ala Ala Thr Ala Met Ala Ser Thr Thr Thr Ala Ala
355 360 365

Ala Ser Met Leu Leu Ser Gly Ser Met Ser Ser Gln Asp Gly Leu Met
370 375 380

Asn Pro Thr Asn Leu Leu Ala Arg Ala Ile Leu Pro Cys Ser Ser Ser
385 390 395 400

Met Ala Thr Ile Ser Ala Ser Ala Pro Phe Pro Thr Ile Thr Leu Asp
405 410 415

Leu Thr Asn Ser Pro Asn Gly Asn Asn Pro Asn Met Thr Thr Asn Asn
420 425 430

Pro Leu Met Gln Phe Ala Gln Arg Pro Gly Phe Asn Pro Ala Val Leu
435 440 445

Pro Gln Val Val Gly Gln Ala Met Tyr Asn Asn Gln Gln Gln Ser Lys
450 455 460

Phe Ser Gly Leu Gln Leu Pro Ala Gln Pro Leu Gln Ile Ala Ala Thr
465 470 475 480

Ser Ser Val Ala Glu Ser Val Ser Ala Ala Ser Ala Ala Ile Ala Ser
485 490 495

Asp Pro Asn Phe Ala Ala Ala Leu Ala Ala Ala Ile Thr Ser Ile Met
500 505 510

Asn Gly Ser Ser His Gln Asn Asn Asn Thr Asn Asn Asn Asn Val Ala
515 520 525

Thr Ser Asn Asn Asp Ser Arg Gln
530 535

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ccactctttg aacgta atg gag aag aac cat agt agt gga gag tgg gag aag 112
Met Glu Lys Asn His Ser Ser Gly Glu Trp Glu Lys
1 5 10

atg aag aac gag atc aac gag cta atg ata gaa gga aga gac tat gca 160
Met Lys Asn Glu Ile Asn Glu Leu Met Ile Glu Gly Arg Asp Tyr Ala
15 20 25

cac cag ttt gga tca gct tca tct caa gaa aca cgt gaa cat tta gcc 208
His Gln Phe Gly Ser Ala Ser Ser Gln Glu Thr Arg Glu His Leu Ala
30 35 40

aaa aag att ctt caa tct tac cac aag tct ctc acc atc atg aac tac 256
Lys Lys Ile Leu Gln Ser Tyr His Lys Ser Leu Thr Ile Met Asn Tyr
45 50 55 60

tcc gcc gaa ctt gac caa gtt tct cag ggt gga gga agc ccc aag agc 304
Ser Gly Glu Leu Asp Gln Val Ser Gln Gly Gly Ser Pro Lys Ser
65 70 75

gat gat tcc gat caa gaa cca ctt gtc atc aag agt tgg aag aag tca 352
Asp Asp Ser Asp Gln Glu Pro Leu Val Ile Lys Ser Ser Lys Lys Ser
80 85 90

atg cca agg tgg agt tca aaa gtc aga att gcc cct gga gct ggt gtt 400
Met Pro Arg Trp Ser Ser Lys Val Arg Ile Ala Pro Gly Ala Gly Val
95 100 105

[illegible]

tgaaataaat ggattgtac tcgtaggat gatccttggt atctaaaaa aaaaaa 1205

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Met Glu Lys Asn His Ser Ser Gly Glu Trp Glu Lys Met Lys Asn Glu
1 5 10 15

Ile Asn Glu Leu Met Ile Glu Gly Arg Asp Tyr Ala His Gln Phe Gly
20 25 30

Ser Ala Ser Ser Gln Glu Thr Arg Glu His Leu Ala Lys Lys Ile Leu
35 40 45

Gln Ser Tyr His Lys Ser Leu Thr Ile Met Asn Tyr Ser Gly Glu Leu
50 55 60

Asp Gln Val Ser Gln Gly Gly Gly Ser Pro Lys Ser Asp Asp Ser Asp
65 70 75 80

Gln Glu Pro Leu Val Ile Lys Ser Ser Lys Lys Ser Met Pro Arg Trp
85 90 95

Ser Ser Lys Val Arg Ile Ala Pro Gly Ala Gly Val Asp Arg Thr Leu
100 105 110

Asp Asp Gly Phe Ser Trp Arg Lys Tyr Gly Gln Lys Asp Ile Leu Gly
115 120 125

Ala Lys Phe Pro Arg Gly Tyr Tyr Arg Cys Thr Tyr Arg Lys Ser Gln
130 135 140

Gly Cys Glu Ala Thr Lys Gln Val Gln Arg Ser Asp Glu Asn Gln Met
145 150 155 160

Leu Leu Glu Ile Ser Tyr Arg Gly Ile His Ser Cys Ser Gln Ala Ala
165 170 175

Asn Val Gly Thr Thr Met Pro Ile Gln Asn Leu Glu Pro Asn Gln Thr
180 185 190

Gln Glu His Gly Asn Leu Asp Met Val Lys Glu Ser Val Asp Asn Tyr
195 200 205

Asn His Gln Ala His Leu His His Asn Leu His Tyr Pro Leu Ser Ser
210 215 220

Thr Pro Asn Leu Glu Asn Asn Ala Tyr Met Leu Gln Met Arg Asp
225 230 235 240

Gln Asn Ile Glu Tyr Phe Gly Ser Thr Ser Phe Ser Ser Asp Leu Gly
245 250 255

Thr Ser Ile Asn Tyr Asn Phe Pro Ala Ser Gly Ser Ala Ser His Ser
260 265 270

Ala Ser Asn Ser Pro Ser Thr Val Pro Leu Glu Ser Pro Phe Glu Ser
275 280 285

Tyr Asp Pro Asn His Pro Tyr Gly Gly Phe Gly Gly Phe Tyr Ser
290 295 300

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Met Ser
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cat gaa atc aaa gat ctt aac aac tat cac tac act tca tgc tat aat 104
His Glu Ile Lys Asp Leu Asn Asn Tyr His Tyr Thr Ser Ser Tyr Asn
5 10 15

cat tac aat atc aac aac caa aat atg att aat ctc cct tac gtt tct 152
His Tyr Asn Ile Asn Asn Gln Asn Met Ile Asn Leu Pro Tyr Val Ser
20 25 30

ggt cca tct gct tat aat gca aac atg atc tca tca tca caa gta ggt 200
Gly Pro Ser Ala Tyr Asn Ala Asn Met Ile Ser Ser Ser Gln Val Gly
35 40 45 50

ttt gat cta ccc tgc aag aac ttg agt cct caa gga gcc ttc gag ttg 248
Phe Asp Leu Pro Ser Lys Asn Leu Ser Pro Gln Gly Ala Phe Glu Leu
55 60 65

ggt ttc gag ctt tct cca tct tct tct gac ttt ttt aat cct tcc ctc 296
Gly Phe Glu Leu Ser Pro Ser Ser Ser Asp Phe Phe Asn Pro Ser Leu
70 75 80

gat caa gag aac ggt ttg tat aat gct tat aat tat aat agt agt caa 344
Asp Gln Glu Asn Gly Leu Tyr Asn Ala Tyr Asn Tyr Asn Ser Ser Gln
85 90 95

aag agt cat gaa gtt gtc ggt gat ggt tgt gca acc att aag agt gaa 392

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Lys	Ser	His	Glu	Val	Val	Gly	Asp	Gly	Cys	Ala	Thr	Ile	Lys	Ser	Glu		
100						105					110						
gtt	agg	gtt	tca	gca	tct	cct	tct	tca	agt	gag	gcc	gat	cat	cat	cca	440	
Val	Arg	Val	Ser	Ala	Ser	Pro	Ser	Ser	Ser	Glu	Ala	Asp	His	His	Pro		
115					120					125					130		
gga	gaa	gat	tcc	ggc	aag	atc	cgg	aag	aaa	aga	gaa	gtt	cgc	gat	gga	488	
Gly	Glu	Asp	Ser	Gly	Lys	Ile	Arg	Lys	Lys	Arg	Glu	Val	Arg	Asp	Gly		
			135						140					145			
gga	gaa	gat	gat	caa	cgc	tct	cag	aaa	gta	gtt	aaa	aca	aag	aag	aaa	536	
Gly	Glu	Asp	Asp	Gln	Arg	Ser	Gln	Lys	Val	Val	Lys	Thr	Lys	Lys	Lys		
			150				155						160				
gag	gag	aag	aaa	aaa	gag	cca	cga	gtc	tcg	ttc	atg	act	aag	acc	gaa	584	
Glu	Glu	Lys	Lys	Lys	Glu	Pro	Arg	Val	Ser	Phe	Met	Thr	Lys	Thr	Glu		
			165				170					175					
gtt	gat	cat	ctc	gaa	gac	ggc	tat	cgt	tgg	aga	aag	tat	ggc	caa	aaa	632	
Val	Asp	His	Leu	Glu	Asp	Gly	Tyr	Arg	Trp	Arg	Lys	Tyr	Gly	Gln	Lys		
			180			185					190						
gca	gtc	aaa	aac	agt	cct	tat	ccg	agg	agt	tac	tat	aga	tgc	acg	act	680	
Ala	Val	Lys	Asn	Ser	Pro	Tyr	Pro	Arg	Ser	Tyr	Tyr	Arg	Cys	Thr	Thr		
			195		200					205				210			
cag	aag	tgc	aac	gtg	aag	aag	aga	gtg	gag	aga	tct	tac	caa	gac	cca	728	
Gln	Lys	Cys	Asn	Val	Lys	Lys	Arg	Val	Glu	Arg	Ser	Tyr	Gln	Asp	Pro		
			215						220					225			
acg	gtc	gtc	atc	aca	acc	tac	gag	agt	caa	cac	aac	cat	ccg	atc	ccg	776	
Thr	Val	Val	Ile	Thr	Thr	Tyr	Glu	Ser	Gln	His	Asn	His	Pro	Ile	Pro		
			230				235						240				
acc	aat	cgt	cgg	aca	gca	atg	ttc	tct	gga	acc	acc	gca	tct	gat	tat	824	
Thr	Asn	Arg	Arg	Thr	Ala	Met	Phe	Ser	Gly	Thr	Thr	Ala	Ser	Asp	Tyr		
			245				250					255					
aac	cca	tca	tcg	tct	cca	ata	ttc	tcc	gat	ctc	atc	atc	aat	act	cca	872	
Asn	Pro	Ser	Ser	Ser	Pro	Ile	Phe	Ser	Asp	Leu	Ile	Ile	Asn	Thr	Pro		
			260			265					270						
aga	agc	ttc	tca	aat	gat	gat	ctc	ttc	cgt	gtg	cca	tac	gct	agt	gtg	920	
Arg	Ser	Phe	Ser	Asn	Asp	Asp	Leu	Phe	Arg	Val	Pro	Tyr	Ala	Ser	Val		
			275			280				285				290			
aac	gtg	aac	cct	agt	tat	cat	caa	cag	caa	cat	gga	ttt	cat	caa	cag	968	
Asn	Val	Asn	Pro	Ser	Tyr	His	Gln	Gln	Gln	His	Gly	Phe	His	Gln	Gln		
			295						300					305			
gag	agt	gag	ttc	gag	ctc	ttg	aag	gag	atg	ttt	cct	tcg	gtt	ttc	ttc	1016	
Glu	Ser	Glu	Phe	Glu	Leu	Leu	Lys	Glu	Met	Phe	Pro	Ser	Val	Phe	Phe		
			310					315					320				
aaa	caa	gag	cct	tga	tgatataata	taatatagaa	acaatttttt	ttctgctaag								1071	
Lys	Gln	Glu	Pro														

aaatatagaa caaaacttgg atgcataata agtgaatgata gtgttattta ttttttgcac 1131
 gtatatatta tacatgtttt gttaactagc tataggatat actggttagta attaagcata 1191
 aatatggagc ccttcgacct attacaataa tttttgggat ggaaaaaatt 1241

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Tyr Asn His Tyr Asn Ile Asn Asn Gln Asn Met Ile Asn Leu Pro Tyr
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Val Ser Gly Pro Ser Ala Tyr Asn Ala Asn Met Ile Ser Ser Ser Gln
 35 40 45

Val Gly Phe Asp Leu Pro Ser Lys Asn Leu Ser Pro Gln Gly Ala Phe
 50 55 60

Glu Leu Gly Phe Glu Leu Ser Pro Ser Ser Ser Asp Phe Phe Asn Pro
 65 70 75 80

Ser Leu Asp Gln Glu Asn Gly Leu Tyr Asn Ala Tyr Asn Tyr Asn Ser
 85 90 95

Ser Gln Lys Ser His Glu Val Val Gly Asp Gly Cys Ala Thr Ile Lys
 100 105 110

Ser Glu Val Arg Val Ser Ala Ser Pro Ser Ser Ser Glu Ala Asp His
 115 120 125

His Pro Gly Glu Asp Ser Gly Lys Ile Arg Lys Lys Arg Glu Val Arg
 130 135 140

Asp Gly Gly Glu Asp Asp Gln Arg Ser Gln Lys Val Val Lys Thr Lys
 145 150 155 160

Lys Lys Glu Glu Lys Lys Lys Glu Pro Arg Val Ser Phe Met Thr Lys
 165 170 175

Thr Glu Val Asp His Leu Glu Asp Gly Tyr Arg Trp Arg Lys Tyr Gly
 180 185 190

Gln Lys Ala Val Lys Asn Ser Pro Tyr Pro Arg Ser Tyr Tyr Arg Cys
195 200 205

Thr Thr Gln Lys Cys Asn Val Lys Lys Arg Val Glu Arg Ser Tyr Gln
210 215 220

Asp Pro Thr Val Val Ile Thr Thr Tyr Glu Ser Gln His Asn His Pro
225 230 235 240

Ile Pro Thr Asn Arg Arg Thr Ala Met Phe Ser Gly Thr Thr Ala Ser
245 250 255

Asp Tyr Asn Pro Ser Ser Ser Pro Ile Phe Ser Asp Leu Ile Ile Asn
260 265 270

Thr Pro Arg Ser Phe Ser Asn Asp Asp Leu Phe Arg Val Pro Tyr Ala
275 280 285

Ser Val Asn Val Asn Pro Ser Tyr His Gln Gln Gln His Gly Phe His
290 295 300

Gln Gln Glu Ser Glu Phe Glu Leu Leu Lys Glu Met Phe Pro Ser Val
305 310 315 320

Phe Phe Lys Gln Glu Pro
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Glu Asp Glu Gln Leu Arg Arg Met Val Glu Lys Tyr Gly Pro Arg Asn
15 20 25

tgg tct gcg att agc aaa tcg att cca ggt cga tct ggt aaa tcg tgt 147
Trp Ser Ala Ile Ser Lys Ser Ile Pro Gly Arg Ser Gly Lys Ser Cys
30 35 40

aga tta cgt tgg tgt aat cag tta tct ccg gag gtt gag cat cgt cct 195
Arg Leu Arg Trp Cys Asn Gln Leu Ser Pro Glu Val Glu His Arg Pro
45 50 55 60

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Gly Asn Lys Trp Ala Thr Ile Ala Arg Leu Leu Asn Gly Arg Thr Asp	
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Asn Ala Val Lys Asn His Trp Asn Ser Thr Leu Lys Arg Lys Cys Ser	
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Gly Gly Val Ala Val Thr Thr Val Thr Glu Thr Glu Asp Gln Asp	
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Arg Pro Lys Lys Arg Arg Ser Val Ser Phe Asp Pro Ala Phe Ala Pro	
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Val Asp Thr Gly Leu Tyr Met Ser Pro Glu Ser Pro Asn Gly Ile Asp	
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Val Ser Asp Ser Ser Thr Ile Pro Ser Pro Ser Pro Val Ala Gln	
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Leu Phe Lys Pro Met Pro Ile Ser Gly Gly Phe Thr Val Val Pro Gln	
175 180 185	
ccg tta ccg gtt gaa atg tct tgc tct tgc gag gat cca cct act tgc	627
Pro Leu Pro Val Glu Met Ser Ser Ser Ser Glu Asp Pro Pro Thr Ser	
190 195 200	
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Leu Ser Leu Ser Leu Pro Gly Ala Glu Asn Thr Ser Ser Ser His Asn	
205 210 215 220	
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Asn Asn Asn Asn Ala Leu Met Phe Pro Arg Phe Glu Ser Gln Met Lys	
225 230 235	
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Ile Asn Val Glu Glu Arg Gly Gly Gly Gly Glu Glu Arg Arg Gly Glu	
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Phe Met Thr Val Val Gln Glu Met Ile Lys Ala Glu Val Arg Ser Tyr	
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Met Ala Glu Met Gln Lys Thr Ser Gly Gly Phe Val Val Gly Gly Leu	
270 275 280	

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Tyr Glu Ser Gly Gly Asn Gly Gly Phe Arg Asp Cys Gly Val Ile Thr
285 290 295 300

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Pro Lys Val Glu

caagagcatt catttttggg gtttatggta aaattaaaaa caaaaacaaa atgtacagag 1030

gaattaaaaa ttctatggaa taatcttaaa tctcaaatat ttgttacttg ttttggtgat 1090

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Leu Arg Arg Met Val Glu Lys Tyr Gly Pro Arg Asn Trp Ser Ala Ile
20 25 30

Ser Lys Ser Ile Pro Gly Arg Ser Gly Lys Ser Cys Arg Leu Arg Trp
35 40 45

Cys Asn Gln Leu Ser Pro Glu Val Glu His Arg Pro Phe Ser Pro Glu
50 55 60

Glu Asp Glu Thr Ile Val Thr Ala Arg Ala Gln Phe Gly Asn Lys Trp
65 70 75 80

Ala Thr Ile Ala Arg Leu Leu Asn Gly Arg Thr Asp Asn Ala Val Lys
85 90 95

Asn His Trp Asn Ser Thr Leu Lys Arg Lys Cys Ser Gly Gly Val Ala
100 105 110

Val Thr Thr Val Thr Glu Thr Glu Glu Asp Gln Asp Arg Pro Lys Lys
115 120 125

Arg Arg Ser Val Ser Phe Asp Pro Ala Phe Ala Pro Val Asp Thr Gly
130 135 140

Leu Tyr Met Ser Pro Glu Ser Pro Asn Gly Ile Asp Val Ser Asp Ser
145 150 155 160

Ser Thr Ile Pro Ser Pro Ser Ser Pro Val Ala Gln Leu Phe Lys Pro
165 170 175

Met Pro Ile Ser Gly Gly Phe Thr Val Val Pro Gln Pro Leu Pro Val
180 185 190

Glu Met Ser Ser Ser Ser Glu Asp Pro Pro Thr Ser Leu Ser Leu Ser
195 200 205

Leu Pro Gly Ala Glu Asn Thr Ser Ser Ser His Asn Asn Asn Asn Asn
210 215 220

Ala Leu Met Phe Pro Arg Phe Glu Ser Gln Met Lys Ile Asn Val Glu
225 230 235 240

Glu Arg Gly Gly Gly Glu Gly Arg Arg Gly Glu Phe Met Thr Val
245 250 255

Val Gln Glu Met Ile Lys Ala Glu Val Arg Ser Tyr Met Ala Glu Met
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Cys Cys Glu Lys Val Gly Ile Lys Arg Gly Arg Trp Thr Ala Glu Glu
10 15 20

gac cag att ctc tcc aac tac att caa tcc aat ggt gaa ggt tct tgg 151
Asp Gln Ile Leu Ser Asn Tyr Ile Gln Ser Asn Gly Glu Gly Ser Trp
25 30 35

aga tct ctc ccc aaa aat gcc gga tta aaa agg tgt gga aag agc tgt 199
Arg Ser Leu Pro Lys Asn Ala Gly Leu Lys Arg Cys Gly Lys Ser Cys
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aga ttg aga tgg ata aac tat cta aga tca gac ctc aag cgt gga aac 247

Arg 55	Leu 55	Arg	Trp	Ile	Asn 60	Tyr 60	Leu	Arg	Ser	Asp	Leu 65	Lys	Arg	Gly	Asn	
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gga Gly	aac Asn	agg Arg	tgg Trp	tca Ser	cta Leu	atc Ile	gcg Ala	ggt Gly	cat His	cta Leu	cca Pro	ggg Gly	aga Arg	aca Thr	gac Asp	343
aac Asn	gaa Glu	ata Ile	aaa Lys	aat Asn	tat Tyr	tgg Trp	aac Asn	tct Ser	cat His	ctc Leu	agc Ser	cgt Arg	aaa Lys	ctc Leu	cac His	391
aac Asn	ttc Phe	att Ile	agg Arg	aag Lys	cca Pro	tcc Ser	atc Ile	tct Ser	caa Gln	gac Asp	gtc Val	tcc Ser	gcc Ala	gta Val	atc Ile	439
atg Met	gca 135	aac Asn	gct Ala	tct Ser	tca Ser	gcg Gly	cca Pro	ccg Pro	ccg Pro	cag Gln	gca Ala	aaa Lys	cgc Arg	aga Arg		487
ctt Leu	ggg Gly	aga Arg	acg Thr	agt Ser	agg Arg	tcc Ser	gct Ala	atg Met	aaa Lys	cca Pro	aaa Pro	atc Lys	cgc Arg	aga Arg	aca Thr	535
aaa Lys	act Thr	cgt Arg	aaa Lys	acg Thr	aag Lys	aaa Lys	acg Thr	tct Ser	gca Ala	cca Pro	ccg Pro	gag Glu	cct Pro	aac Asn	gcc Ala	583
gat Asp	gta Val	gct Ala	ggg Gly	gct Ala	gat Asp	aaa Lys	gaa Glu	gca Ala	tta Leu	atg Met	gtg Val	gag Glu	tca Ser	agt Ser	gga Gly	631
gcc Ala	gag Glu	gct Ala	gag Glu	cta Leu	gga Gly	cga Arg	cca Pro	tgt Cys	gac Asp	tac Tyr	tat Tyr	gga Gly	gat Asp	gat Asp	tgt Cys	679
aac Asn	aaa Lys	aat Asn	ctc Leu	atg Met	agc Ser	att Ile	aat Asn	ggc Gly	gat Asp	aat Asn	gga Gly	gtt Val	tta Leu	acg Thr	ttt Phe	727
gat Asp	gat Asp	gat Asp	atc Ile	atc Ile	gat Asp	ctt Leu	ttg Leu	ttg Leu	gac Asp	gag Glu	tca Ser	gat Asp	cct Pro	ggc Gly	cac His	775
ttg Leu	tac Tyr	aca Thr	aac Asn	aca Thr	acg Thr	tgc Cys	ggt Gly	ggt Gly	ggg Gly	gag Gly	gtg Glu	ttg Leu	cat His	aac Asn	ata Ile	823
aga Arg	gac Asp	tct Ser	gaa Glu	gga Gly	gcc Ala	aga Arg	ggg Gly	ttc Phe	tgc Ser	gat Asp	act Thr	tgg Trp	aac Asn	caa Gln	ggg Gly	871
aat Asn	ctc Leu	gac Asp	cgt Tyr	ctt Leu	ctt Leu	cag Gln	tct Ser	tgt Cys	cca Pro	tct Ser	gtg Val	gag Glu	tcg Ser	ttt Phe	ctc Leu	919

280	285	290	
aac tac gac cac caa gtt aac gac gcg tcg acg gat gag ttt atc gat Asn Tyr Asp His Gln Val Asn Asp Ala Ser Thr Asp Glu Phe Ile Asp 295 300 305			967
tgg gat tgt gtt tgg caa gaa ggt agt gat aat aat ctt tgg cat gag Trp Asp Cys Val Trp Gln Glu Gly Ser Asp Asn Asn Leu Trp His Glu 310 315 320 325			1015
aaa gag aat ccc gac tca atg gtc tog tgg ctt tta gac ggt gat gat Lys Glu Asn Pro Asp Ser Met Val Ser Trp Leu Leu Asp Gly Asp Asp 330 335 340			1063
gag gcc acg atc ggg aat agt aat tgt gag aac ttt gga gaa cgg tta Glu Ala Thr Ile Gly Asn Ser Asn Cys Glu Asn Phe Gly Glu Pro Leu 345 350 355			1111
gat cat gac gac gaa agc gct ttg gtc gct tgg ctt ctg tca tga Asp His Asp Asp Glu Ser Ala Leu Val Ala Trp Leu Leu Ser 360 365 370			1156
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Cys Gly Lys Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg Ser Asp 50 55 60			
Leu Lys Arg Gly Asn Ile Thr Pro Glu Glu Glu Glu Leu Val Val Lys 65 70 75 80			
Leu His Ser Thr Leu Gly Asn Arg Trp Ser Leu Ile Ala Gly His Leu 85 90 95			
Pro Gly Arg Thr Asp Asn Glu Ile Lys Asn Tyr Trp Asn Ser His Leu 100 105 110			
Ser Arg Lys Leu His Asn Phe Ile Arg Lys Pro Ser Ile Ser Gln Asp 115 120 125			

Val Ser Ala Val Ile Met Ala Asn Ala Ser Ser Ala Pro Pro Pro Pro
 130 135 140

Gln Ala Lys Arg Arg Leu Gly Arg Thr Ser Arg Ser Ala Met Lys Pro
 145 150 155 160

Lys Ile Arg Arg Thr Lys Thr Arg Lys Thr Lys Lys Thr Ser Ala Pro
 165 170 175

Pro Glu Pro Asn Ala Asp Val Ala Gly Ala Asp Lys Glu Ala Leu Met
 180 185 190

Val Glu Ser Ser Gly Ala Glu Ala Glu Leu Gly Arg Pro Cys Asp Tyr
 195 200 205

Tyr Gly Asp Asp Cys Asn Lys Asn Leu Met Ser Ile Asn Gly Asp Asn
 210 215 220

Gly Val Leu Thr Phe Asp Asp Asp Ile Ile Asp Leu Leu Leu Asp Glu
 225 230 235 240

Ser Asp Pro Gly His Leu Tyr Thr Asn Thr Thr Cys Gly Gly Gly Gly
 245 250 255

Glu Leu His Asn Ile Arg Asp Ser Glu Gly Ala Arg Gly Phe Ser Asp
 260 265 270

Thr Trp Asn Gln Gly Asn Leu Asp Cys Leu Leu Gln Ser Cys Pro Ser
 275 280 285

Val Glu Ser Phe Leu Asn Tyr Asp His Gln Val Asn Asp Ala Ser Thr
 290 295 300

Asp Glu Phe Ile Asp Trp Asp Cys Val Trp Gln Glu Gly Ser Asp Asn
 305 310 315 320

Asn Leu Trp His Glu Lys Glu Asn Pro Asp Ser Met Val Ser Trp Leu
 325 330 335

Leu Asp Gly Asp Asp Glu Ala Thr Ile Gly Asn Ser Asn Cys Glu Asn
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Leu Leu Ser
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 Met Ala Asp Arg Ile Lys Gly Pro Trp Ser Pro Glu Glu Asp Glu
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 Ile Ser Lys Ser Ile Pro Gly Arg Ser Gly Lys Ser Cys Arg Leu Arg
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Val Leu Pro Leu Pro Ile Glu Thr Ser Ser Phe Ser Asp Asp Pro Pro	180	185	190	
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Thr Ser Leu Ser Leu Ser Leu Pro Gly Ala Asp Val Ser Glu Glu Ser	195	200	205	
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Asn Arg Ser His Glu Ser Thr Asn Ile Asn Asn Thr Ser Ser Arg	210	215	220	
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Arg Gly Ala Ile Glu Glu Met Gly Lys Ser Phe Pro Gly Asn Gly Gly	240	245	250	
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Glu Phe Met Ala Val Val Gln Glu Met Ile Lys Ala Glu Val Arg Ser	260	265	270	
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Tyr Met Thr Glu Met Gln Arg Asn Asn Gly Gly Gly Phe Val Gly Gly	275	280	285	
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Phe Ile Asp Asn Gly Met Ile Pro Met Ser Gln Ile Gly Val Gly Arg	290	295	300	
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Ile Glu	305			
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Ser Lys Ser Ile Pro Gly Arg Ser Gly Lys Ser Cys Arg Leu Arg Trp	35	40	45	

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Glu Asp Glu Thr Ile Ala Arg Ala His Ala Gln Phe Gly Asn Lys Trp
65 70 75 80

Ala Thr Ile Ala Arg Leu Leu Asn Gly Arg Thr Asp Asn Ala Val Lys
85 90 95

Asn His Trp Asn Ser Thr Leu Lys Arg Lys Cys Gly Gly Tyr Asp His
100 105 110

Arg Gly Tyr Asp Gly Ser Glu Asp His Arg Pro Val Lys Arg Ser Val
115 120 125

Ser Ala Gly Ser Pro Pro Val Val Thr Gly Leu Tyr Met Ser Pro Gly
130 135 140

Ser Pro Thr Gly Ser Asp Val Ser Asp Ser Ser Thr Ile Pro Ile Leu
145 150 155 160

Pro Ser Val Glu Leu Phe Lys Pro Val Pro Arg Pro Gly Ala Val Val
165 170 175

Leu Pro Leu Pro Ile Glu Thr Ser Ser Phe Ser Asp Asp Pro Pro Thr
180 185 190

Ser Leu Ser Leu Ser Leu Pro Gly Ala Asp Val Ser Glu Glu Ser Asn
195 200 205

Arg Ser His Glu Ser Thr Asn Ile Asn Asn Thr Thr Ser Ser Arg His
210 215 220

Asn His Asn Asn Thr Val Ser Phe Met Pro Phe Ser Gly Gly Phe Arg
225 230 235 240

Gly Ala Ile Glu Glu Met Gly Lys Ser Phe Pro Gly Asn Gly Gly Glu
245 250 255

Phe Met Ala Val Val Gln Glu Met Ile Lys Ala Glu Val Arg Ser Tyr
260 265 270

Met Thr Glu Met Gln Arg Asn Asn Gly Gly Gly Phe Val Gly Gly Phe
275 280 285

Ile Asp Asn Gly Met Ile Pro Met Ser Gln Ile Gly Val Gly Arg Ile
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Glu
305

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Trp Thr Val Glu Asp Lys Ile Leu Met Asp Tyr Val Arg Thr His
20 25 30
ggc cag ggc cac tgg aac cgc atc gcc aag aaa act ggg ctc aag aga 144
Gly Gln Gly His Trp Asn Arg Ile Ala Lys Lys Thr Gly Leu Lys Arg
35 40 45
tgt ggg aaa agc tgt agg ttg aga tgg atg aac tac tta agc cct aat 192
Cys Gly Lys Ser Cys Arg Leu Arg Trp Met Asn Tyr Leu Ser Pro Asn
50 55 60
gtt aac aga ggc aat ttt act gac caa gaa gaa gat ctc atc atc aga 240
Val Asn Arg Gly Asn Phe Thr Asp Gln Glu Glu Asp Leu Ile Ile Arg
65 70 75 80
ctc cac aag ctc ctc ggc aac aga tgg tgg ata gcg aaa aga gtt 288
Leu His Lys Leu Leu Gly Asn Arg Trp Ser Leu Ile Ala Lys Arg Val
85 90 95
ccg gga aga aca gac aac caa gta aag aat tac tgg aac aca cat ctc 336
Pro Gly Arg Thr Asp Asn Gln Val Lys Asn Tyr Trp Asn Thr His Leu
100 105 110
agc aag aaa ctt ggt ctc gga gat cat tca act gcc gtc aaa gcc gca 384
Ser Lys Lys Leu Gly Leu Gly Asp His Ser Thr Ala Val Lys Ala Ala
115 120 125
tgc ggt gta gag tct cca ccg tct atg gcc ctt ata acc aca acg tcc 432
Cys Gly Val Glu Ser Pro Pro Ser Met Ala Leu Ile Thr Thr Thr Ser
130 135 140
tcc tct cat caa gag atc tcc ggt gga aaa aat tca act cta agg ttc 480
Ser Ser His Gln Glu Ile Ser Gly Gly Lys Asn Ser Thr Leu Arg Phe
145 150 155 160

gac act tta gtt gac gaa tcc aaa ctc aaa cca aaa tcc aaa cta gtc 528
 Asp Thr Leu Val Asp Glu Ser Lys Leu Lys Pro Lys Ser Lys Leu Val
 165 170 175

cac gca aca cca act gac gta gaa gtt gca gct acg gtt cca aat ctg 576
 His Ala Thr Pro Thr Asp Val Glu Val Ala Ala Thr Val Pro Asn Leu
 180 185 190

ttc gat acc ttt tgg gtt ctt gaa gac gac ttc gag ctt agt tca ctc 624
 Phe Asp Thr Phe Trp Val Leu Glu Asp Asp Phe Glu Leu Ser Ser Leu
 195 200 205

act atg atg gat ttt act aat ggg tat tgc ctt tga 660
 Thr Met Met Asp Phe Thr Asn Gly Tyr Cys Leu
 210 215

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Gly Gln Gly His Trp Asn Arg Ile Ala Lys Lys Thr Gly Leu Lys Arg
 35 40 45

Cys Gly Lys Ser Cys Arg Leu Arg Trp Met Asn Tyr Leu Ser Pro Asn
 50 55 60

Val Asn Arg Gly Asn Phe Thr Asp Gln Glu Glu Asp Leu Ile Ile Arg
 65 70 75 80

Leu His Lys Leu Leu Gly Asn Arg Trp Ser Leu Ile Ala Lys Arg Val
 85 90 95

Pro Gly Arg Thr Asp Asn Gln Val Lys Asn Tyr Trp Asn Thr His Leu
 100 105 110

Ser Lys Lys Leu Gly Leu Gly Asp His Ser Thr Ala Val Lys Ala Ala
 115 120 125

Cys Gly Val Glu Ser Pro Pro Ser Met Ala Leu Ile Thr Thr Thr Ser
 130 135 140

Ser Ser His Gln Glu Ile Ser Gly Gly Lys Asn Ser Thr Leu Arg Phe
 145 150 155 160

Asp Thr Leu Val Asp Glu Ser Lys Leu Lys Pro Lys Ser Lys Leu Val
165 170 175

His Ala Thr Pro Thr Asp Val Glu Val Ala Ala Thr Val Pro Asn Leu
180 185 190

Phe Asp Thr Phe Trp Val Leu Glu Asp Asp Phe Glu Leu Ser Ser Leu
195 200 205

Thr Met Met Asp Phe Thr Asn Gly Tyr Cys Leu
210 215

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Ser Ala Ser Val Ser Gly Gly Glu Gly Ala Gly Gly Pro Ala Pro Phe
10 15 20

ttg gtg aaa acc tac gag atg gtc gac gat tca tca acg gac cag atc 149
Leu Val Lys Thr Tyr Glu Met Val Asp Asp Ser Ser Thr Asp Gln Ile
25 30 35 40

gta tcg tgg agc gct aac aac aac agc ttc atc gtt tgg aat cat gcc 197
Val Ser Trp Ser Ala Asn Asn Asn Ser Phe Ile Val Trp Asn His Ala
45 50 55

gaa ttt tca cgc ctc ctt ctt cca acc tac ttc aaa cac aat aac ttc 245
Glu Phe Ser Arg Leu Leu Leu Pro Thr Phe Lys His Asn Asn Phe
60 65 70

tct tcc ttc att cgt cag ctc aat acc tat ggg ttt agg aag att gat 293
Ser Ser Phe Ile Arg Gln Leu Asn Thr Tyr Gly Phe Arg Lys Ile Asp
75 80 85

cca gag agg tgg gag ttt ttg aat gat gat ttt att aag gat cag aag 341
Pro Glu Arg Trp Glu Phe Leu Asn Asp Asp Phe Ile Lys Asp Gln Lys
90 95 100

cat ctt ctc aag aat ata cat aga agg aaa cct ata cac agc cac agt 389
His Leu Leu Lys Asn Ile His Arg Arg Lys Pro Ile His Ser His Ser
105 110 115 120

cat cca cct gct tcg tcg act gat caa gaa aga gca gtg ttg caa gag 437
His Pro Pro Ala Ser Ser Thr Asp Gln Glu Arg Ala Val Leu Gln Glu
125 130 135

caa atg gac aag ctt tca cgt gag aaa gct gca att gaa gct aag ctt Gln Met Asp Lys Leu Ser Arg Glu Lys Ala Ala Ile Glu Ala Lys Leu 140 145 150	485
tta aag ttc aaa caa cag aag gtt gta gca aag cat cag ttt gaa gaa Leu Lys Phe Lys Gln Gln Lys Val Val Ala Lys His Gln Phe Glu Glu 155 160 165	533
atg act gag cat gtt gat gat atg gag aat agg cag aag aag ctg ctg Met Thr Glu His Val Asp Asp Met Glu Asn Arg Gln Lys Lys Leu Leu 170 175 180	581
aat ttt ttg gaa act cgc att cgg aat cct act ttt gtt aag aat ttt Asn Phe Leu Glu Thr Ala Ile Arg Asn Pro Thr Phe Val Lys Asn Phe 185 190 195 200	629
ggc aag aaa gtc gag cag ttg gat att tca gct tac aac aaa aag cga Gly Lys Lys Val Glu Gln Leu Asp Ile Ser Ala Tyr Asn Lys Lys Arg 205 210 215	677
agg ctc cct gaa gtt gag caa tca aag cca cct tca gaa gat tct cat Arg Leu Pro Glu Val Glu Gln Ser Lys Pro Pro Ser Glu Asp Ser His 220 225 230	725
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cat caa aat ttc tct aat aaa ttg cga cta gag ctt tct cca gct gat His Gln Asn Phe Ser Asn Lys Leu Arg Leu Glu Leu Ser Pro Ala Asp 250 255 260	821
tca gat atg aac atg gtt tca cac agt ata caa agt tcc aat gaa gaa Ser Asp Met Asn Met Val Ser His Ser Ile Gln Ser Ser Asn Glu Glu 265 270 275 280	869
ggc ggc agt ccc aaa ggg ata ctg tca gga ggt gat cca aat act aca Gly Ala Ser Pro Lys Gly Ile Leu Ser Gly Gly Asp Pro Asn Thr Thr 285 290 295	917
cta aca aaa aga gaa ggc cta cca ttt gca cct gaa gct cta gag ctt Leu Thr Lys Arg Glu Gly Leu Pro Phe Ala Pro Glu Ala Leu Glu Leu 300 305 310	965
gcg gat acc ggg aca tgc ccg agg aga tta ctg tta aat gat aat aca Ala Asp Thr Gly Thr Cys Pro Arg Arg Leu Leu Leu Asn Asp Asn Thr 315 320 325	1013
agg gtg gag acc ttg cag cag agg cta act tct tca gag gag act gat Arg Val Glu Thr Leu Gln Gln Arg Leu Thr Ser Ser Glu Glu Thr Asp 330 335 340	1061
ggc agc ttt tca tgt cat tta aat cta acc ctg gct tct gct ccg tta Gly Ser Phe Ser Cys His Leu Asn Leu Thr Leu Ala Ser Ala Pro Leu 345 350 355 360	1109

ccg gac aaa aca gct tca cag ata gct aag acg act ctt aaa agt cag 1157
 Pro Asp Lys Thr 365 Ala Ser Gln Ile Ala Lys Thr Thr Leu Lys Ser Gln 375

 gag tta aac ttt aac tca ata gaa aca agt gca agt gag aaa aat cgg 1205
 Glu Leu Asn Phe Asn Ser Ile Glu Thr Ser Ala Ser Glu Lys Asn Arg 380 385 390

 ggt aga caa gag att gca gtt gga ggt agc caa gca aat gca gct cct 1253
 Gly Arg 395 Gln Glu Ile Ala Val Gly Gly Ser Gln Ala Asn Ala Ala Pro 400 405

 cca gca aga gtg aat gat gta ttc tgg gaa cag ttc cta aca gaa agg 1301
 Pro Ala Arg Val Asn Asp Val Phe Trp Glu Gln Phe Leu Thr Glu Arg 410 415 420

 cca ggg tct tca gat aat gag gag gca agt tgg act tat aga ggt aac 1349
 Pro Gly Ser Ser Asp Asn Glu Glu Ala Ser Ser Thr Tyr Arg Gly Asn 425 430 435 440

 cca tac gaa gag caa gag gag aaa aga aac ggg agt atg atg tta cgt 1397
 Pro Tyr Glu Glu Gln Glu Glu Lys Arg Asn Gly Ser Met Met Leu Arg 445 450 455

 aat aca aag aat atc gag cag ctg acc tta taa actatttga cggttacatc 1450
 Asn Thr Lys Asn Ile Glu Gln Leu Thr Leu 460 465

 aacgagagta cgaactgagg ttttggttaag aagtatgggt gagtaagtaa tgaacattg 1510

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 20 25 30

 Asp Asp Ser Ser Thr Asp Gln Ile Val Ser Trp Ser Ala Asn Asn Asn
 35 40 45

 Ser Phe Ile Val Trp Asn His Ala Glu Phe Ser Arg Leu Leu Leu Pro
 50 55 60

 Thr Tyr Phe Lys His Asn Asn Phe Ser Ser Phe Ile Arg Gln Leu Asn
 65 70 75 80

Thr Tyr Gly Phe Arg Lys Ile Asp Pro Glu Arg Trp Glu Phe Leu Asn
 85 90 95

Asp Asp Phe Ile Lys Asp Gln Lys His Leu Leu Lys Asn Ile His Arg
 100 105 110

Arg Lys Pro Ile His Ser His Ser His Pro Pro Ala Ser Ser Thr Asp
 115 120 125

Gln Glu Arg Ala Val Leu Gln Glu Gln Met Asp Lys Leu Ser Arg Glu
 130 135 140

Lys Ala Ala Ile Glu Ala Lys Leu Leu Lys Phe Lys Gln Gln Lys Val
 145 150 155 160

Val Ala Lys His Gln Phe Glu Glu Met Thr Glu His Val Asp Asp Met
 165 170 175

Glu Asn Arg Gln Lys Lys Leu Leu Asn Phe Leu Glu Thr Ala Ile Arg
 180 185 190

Asn Pro Thr Phe Val Lys Asn Phe Gly Lys Lys Val Glu Gln Leu Asp
 195 200 205

Ile Ser Ala Tyr Asn Lys Lys Arg Arg Leu Pro Glu Val Glu Gln Ser
 210 215 220

Lys Pro Pro Ser Glu Asp Ser His Leu Asp Asn Ser Ser Gly Ser Ser
 225 230 235 240

Arg Arg Glu Ser Gly Asn Ile Phe His Gln Asn Phe Ser Asn Lys Leu
 245 250 255

Arg Leu Glu Leu Ser Pro Ala Asp Ser Asp Met Asn Met Val Ser His
 260 265 270

Ser Ile Gln Ser Ser Asn Glu Glu Gly Ala Ser Pro Lys Gly Ile Leu
 275 280 285

Ser Gly Gly Asp Pro Asn Thr Thr Leu Thr Lys Arg Glu Gly Leu Pro
 290 295 300

Phe Ala Pro Glu Ala Leu Glu Leu Ala Asp Thr Gly Thr Cys Pro Arg

305 310 315 320

Arg Leu Leu Leu Asn Asp Asn Thr Arg Val Glu Thr Leu Gln Gln Arg
325 330 335

Leu Thr Ser Ser Glu Glu Thr Asp Gly Ser Phe Ser Cys His Leu Asn
340 345 350

Leu Thr Leu Ala Ser Ala Pro Leu Pro Asp Lys Thr Ala Ser Gln Ile
355 360 365

Ala Lys Thr Thr Leu Lys Ser Gln Glu Leu Asn Phe Asn Ser Ile Glu
370 375 380

Thr Ser Ala Ser Glu Lys Asn Arg Gly Arg Gln Glu Ile Ala Val Gly
385 390 395 400

Gly Ser Gln Ala Asn Ala Ala Pro Pro Ala Arg Val Asn Asp Val Phe
405 410 415

Trp Glu Gln Phe Leu Thr Glu Arg Pro Gly Ser Ser Asp Asn Glu Glu
420 425 430

Ala Ser Ser Thr Tyr Arg Gly Asn Pro Tyr Glu Glu Gln Glu Glu Lys
435 440 445

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Thr Leu
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Met Asp Thr Thr Ile Asp Gly
1 5

ttc gcc gat tct tat gaa atc agc agc act agt ttc gtc gct acc gat 161
Phe Ala Asp Ser Tyr Glu Ile Ser Ser Thr Ser Phe Val Ala Thr Asp
10 15 20

aac acc gac tcc tct att gtt tat ctg gcc gcc gaa caa gta ctc acc Asn Thr Asp Ser Ser Ile Val Tyr Leu Ala Ala Glu Gln Val Leu Thr 25 30 35	209
gga cct gat gta tct gct ctg caa ttg ctc tcc aac agc ttc gaa tcc Gly Pro Asp Val Ser Ala Leu Gln Leu Leu Ser Asn Ser Phe Glu Ser 40 45 50 55	257
gtc ttt gac tcg ccg gat gat ttc tac agc gac gct aag ctt gtt ctc Val Phe Asp Ser Pro Asp Asp Phe Tyr Ser Asp Ala Lys Leu Val Leu 60 65 70	305
tcc gac ggc cgg gaa gtt tct ttc cac cgg tgc gtt ttg tca gcg aga Ser Asp Gly Arg Glu Val Ser Phe His Arg Cys Val Leu Ser Ala Arg 75 80 85	353
agc tct ttc ttc aag agc gct tta gcc gcc gct aag aag gag aaa gac Ser Ser Phe Phe Lys Ser Ala Leu Ala Ala Lys Lys Glu Lys Asp 90 95 100	401
tcc aac aac acc gcc gcc gtg aag ctc gag ctt aag gag att gcc aag Ser Asn Asn Thr Ala Ala Val Lys Leu Glu Lys Glu Ile Ala Lys 105 110 115	449
gat tac gaa gtc ggt ttc gat tcg gtt gtg act gtt ttg gct tat gtt Asp Tyr Glu Val Gly Phe Asp Ser Val Val Thr Val Leu Ala Tyr Val 120 125 130 135	497
tac agc agc aga gtg aga ccg ccg cct aaa gga gtt tct gaa tgc gca Tyr Ser Ser Arg Val Arg Pro Pro Pro Lys Gly Val Ser Glu Cys Ala 140 145 150	545
gac gag aat tgc tgc cac gtg gct tgc cgg ccg gcg gtg gat ttc atg Asp Glu Asn Cys Cys His Val Ala Cys Arg Pro Ala Val Asp Phe Met 155 160 165	593
ttg gag gtt ctc tat ttg gct ttc atc ttc aag atc cct gaa tta att Leu Glu Val Leu Tyr Leu Ala Phe Ile Phe Lys Ile Pro Glu Leu Ile 170 175 180	641
act ctc tat cag agg cac tta ttg gac gtt gta gac aaa gtt gtt ata Thr Leu Tyr Gln Arg His Leu Leu Asp Val Val Asp Lys Val Val Ile 185 190 195	689
gag gac aca ttg gtt ata ctc aag ctt gct aat ata tgt ggt aaa gct Glu Asp Thr Leu Val Ile Leu Lys Leu Ala Asn Ile Cys Gly Lys Ala 200 205 210 215	737
tgt atg aag cta ttg gat aga tgt aaa gag att att gtc aag tct aat Cys Met Lys Leu Leu Asp Arg Cys Lys Glu Ile Ile Val Lys Ser Asn 220 225 230	785
gta gat atg gtt agt ctt gaa aag tca ttg ccg gaa gag ctt gtt aaa Val Asp Met Val Ser Leu Glu Lys Ser Leu Pro Glu Glu Leu Val Lys 235 240 245	833
gag ata att gat aga cgt aaa gag ctt ggt ttg gag gta cct aaa gta	881

Glu Ile Ile Asp Arg Arg Lys Glu Leu Gly Leu Glu Val Pro Lys Val	
250 255 260	
aag aaa cat gtc tgc aat gta cat aag gca ctt gac tgc gat gat att	929
Lys Lys His Val Ser Asn Val His Lys Ala Leu Asp Ser Asp Asp Ile	
265 270 275	
gag tta gtc aag ttg ctt ttg aaa gag gat cac acc aat cta gat gat	977
Glu Leu Val Lys Leu Leu Leu Lys Glu Asp His Thr Asn Leu Asp Asp	
280 285 290 295	
gcg tgt gct ctt cat ttc gct gtt gca tat tgc aat gtg aag acc gca	1025
Ala Cys Ala Leu His Phe Ala Val Ala Tyr Cys Asn Val Lys Thr Ala	
300 305 310	
aca gat ctt tta aaa ctt gat ctt gcc gat gtc aac cat agg aat ccg	1073
Thr Asp Leu Leu Lys Leu Asp Leu Ala Asp Val Asn His Arg Asn Pro	
315 320 325	
agg gga tat acg gtg ctt cat gtt gct gcg atg cgg aag gag cca caa	1121
Arg Gly Tyr Thr Val Leu His Val Ala Ala Met Arg Lys Glu Pro Gln	
330 335 340	
ttg ata cta tct cta ttg gaa aaa ggt gca agt gca tca gaa gca act	1169
Leu Ile Leu Ser Leu Leu Glu Lys Gly Ala Ser Ala Ser Glu Ala Thr	
345 350 355	
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Leu Glu Gly Arg Thr Ala Leu Met Ile Ala Lys Gln Ala Thr Met Ala	
360 365 370 375	
gtt gaa tgt aat aat atc ccg gag caa tgc aag cat tct ctc aaa gcc	1265
Val Glu Cys Asn Asn Ile Pro Glu Gln Cys Lys His Ser Leu Lys Gly	
380 385 390	
cga cta tgt gta gaa ata cta gag caa gaa gac aaa cga gaa caa att	1313
Arg Leu Cys Val Glu Ile Leu Glu Gln Glu Asp Lys Arg Glu Gln Ile	
395 400 405	
cct aga gat gtt cct ccc tct ttt gca gtg gcg gcc gat gaa ttg aag	1361
Pro Arg Asp Val Pro Pro Ser Phe Ala Val Ala Ala Asp Glu Leu Lys	
410 415 420	
atg acg ctg ctc gat ctt gaa aat aga gtt gca ctt gct caa cgt ott	1409
Met Thr Leu Leu Asp Leu Glu Asn Arg Val Ala Leu Ala Gln Arg Leu	
425 430 435	
ttt cca acg gaa gca caa gct gca atg gag atc gcc gaa atg aag gga	1457
Phe Pro Thr Glu Ala Gln Ala Ala Met Glu Ile Ala Glu Met Lys Gly	
440 445 450 455	
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Thr Cys Glu Phe Ile Val Thr Ser Leu Glu Pro Asp Arg Leu Thr Gly	
460 465 470	
acg aag aga aca tca ccg ggt gta aag ata gca cct ttc aga atc cta	1553
Thr Lys Arg Thr Ser Pro Gly Val Lys Ile Ala Pro Phe Arg Ile Leu	

475									480									485									
gaa gag cat caa agt aga cta aaa gcg ctt tct aaa acc gtg gaa ctc	1601																										
Glu Glu His Gln Ser Arg Leu Lys Ala Leu Ser Lys Thr Val Glu Leu																											
490	495	500																									
ggg aaa cga ttc ttc cgc gcg tgt tgc gca gtg ctc gac cag att atg	1649																										
Gly Lys Arg Phe Phe Pro Arg Cys Ser Ala Val Leu Asp Gln Ile Met																											
505	510	515																									
aac tgt gag gac ttg act caa ctg gct tgc gga gaa gac gac act gct	1697																										
Asn Cys Glu Asp Leu Thr Gln Leu Ala Cys Gly Glu Asp Asp Thr Ala																											
520	525	530	535																								
gag aaa cga cta caa aag aag caa agg tac atg gaa ata caa gag aca	1745																										
Glu Lys Arg Leu Gln Lys Lys Gln Arg Tyr Met Glu Ile Gln Glu Thr																											
540	545	550																									
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Leu Lys Lys Ala Phe Ser Glu Asp Asn Leu Glu Leu Gly Asn Ser Ser																											
555	560	565																									
ctg aca gat tgc act tct tcc aca tcg aaa tca acc ggt gga aag agg	1841																										
Leu Thr Asp Ser Thr Ser Thr Ser Lys Ser Thr Gly Gly Lys Arg																											
570	575	580																									
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Ser Asn Arg Lys Leu Ser His Arg Arg Arg																											
585	590																										
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tggcgtcata tagtttcgct ctctgttttg catcctgtgt attattgctg caggtgtgct	2014																										
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          20          25          30

Ala Ala Glu Gln Val Leu Thr Gly Pro Asp Val Ser Ala Leu Gln Leu
          35          40          45

Leu Ser Asn Ser Phe Glu Ser Val Phe Asp Ser Pro Asp Asp Phe Tyr
50          55          60

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Ser Asp Ala Lys Leu Val Leu Ser Asp Gly Arg Glu Val Ser Phe His
 65 70 75 80

Arg Cys Val Leu Ser Ala Arg Ser Ser Phe Phe Lys Ser Ala Leu Ala
 85 90 95

Ala Ala Lys Lys Glu Lys Asp Ser Asn Asn Thr Ala Ala Val Lys Leu
 100 105 110

Glu Leu Lys Glu Ile Ala Lys Asp Tyr Glu Val Gly Phe Asp Ser Val
 115 120 125

Val Thr Val Leu Ala Tyr Val Tyr Ser Ser Arg Val Arg Pro Pro Pro
 130 135 140

Lys Gly Val Ser Glu Cys Ala Asp Glu Asn Cys Cys His Val Ala Cys
 145 150 155 160

Arg Pro Ala Val Asp Phe Met Leu Glu Val Leu Tyr Leu Ala Phe Ile
 165 170 175

Phe Lys Ile Pro Glu Leu Ile Thr Leu Tyr Gln Arg His Leu Leu Asp
 180 185 190

Val Val Asp Lys Val Val Ile Glu Asp Thr Leu Val Ile Leu Lys Leu
 195 200 205

Ala Asn Ile Cys Gly Lys Ala Cys Met Lys Leu Leu Asp Arg Cys Lys
 210 215 220

Glu Ile Ile Val Lys Ser Asn Val Asp Met Val Ser Leu Glu Lys Ser
 225 230 235 240

Leu Pro Glu Glu Leu Val Lys Glu Ile Ile Asp Arg Arg Lys Glu Leu
 245 250 255

Gly Leu Glu Val Pro Lys Val Lys Lys His Val Ser Asn Val His Lys
 260 265 270

Ala Leu Asp Ser Asp Asp Ile Glu Leu Val Lys Leu Leu Lys Glu
 275 280 285

Asp His Thr Asn Leu Asp Asp Ala Cys Ala Leu His Phe Ala Val Ala

290

295

300

Tyr Cys Asn Val Lys Thr Ala Thr Asp Leu Leu Lys Leu Asp Leu Ala
305 310 315 320

Asp Val Asn His Arg Asn Pro Arg Gly Tyr Thr Val Leu His Val Ala
325 330 335

Ala Met Arg Lys Glu Pro Gln Leu Ile Leu Ser Leu Leu Glu Lys Gly
340 345 350

Ala Ser Ala Ser Glu Ala Thr Leu Glu Gly Arg Thr Ala Leu Met Ile
355 360 365

Ala Lys Gln Ala Thr Met Ala Val Glu Cys Asn Asn Ile Pro Glu Gln
370 375 380

Cys Lys His Ser Leu Lys Gly Arg Leu Cys Val Glu Ile Leu Glu Gln
385 390 395 400

Glu Asp Lys Arg Glu Gln Ile Pro Arg Asp Val Pro Pro Ser Phe Ala
405 410 415

Val Ala Ala Asp Glu Leu Lys Met Thr Leu Leu Asp Leu Glu Asn Arg
420 425 430

Val Ala Leu Ala Gln Arg Leu Phe Pro Thr Glu Ala Gln Ala Ala Met
435 440 445

Glu Ile Ala Glu Met Lys Gly Thr Cys Glu Phe Ile Val Thr Ser Leu
450 455 460

Glu Pro Asp Arg Leu Thr Gly Thr Lys Arg Thr Ser Pro Gly Val Lys
465 470 475 480

Ile Ala Pro Phe Arg Ile Leu Glu Glu His Gln Ser Arg Leu Lys Ala
485 490 495

Leu Ser Lys Thr Val Glu Leu Gly Lys Arg Phe Phe Pro Arg Cys Ser
500 505 510

Ala Val Leu Asp Gln Ile Met Asn Cys Glu Asp Leu Thr Gln Leu Ala
515 520 525

Cys Gly Glu Asp Asp Thr Ala Glu Lys Arg Leu Gln Lys Lys Gln Arg
530 535 540

Tyr Met Glu Ile Gln Glu Thr Leu Lys Lys Ala Phe Ser Glu Asp Asn
545 550 555 560

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Arg

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<222> (124)..(1197) <223> G291

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tcaaatcaat tctcgogatt aagcaaaacc ctgattttat tctactcttc gaatcgatt 120

tca atg gaa ggt tcc tgc tca gcc atc gcg agg aag aca tgg gag cta 168
Met Glu Gly Ser Ser Ala Ile Ala Arg Lys Thr Trp Glu Leu
1 5 10 15

gag aac aac att ctc cca gtg gaa cca acc gat tca gcc tcc gac agt 216
Glu Asn Asn Ile Leu Pro Val Glu Pro Thr Asp Ser Ala Ser Asp Ser
20 25 30

ata ttc cac tac gac gac gct tca caa gcc aaa atc cag cag gag aag 264
Ile Phe His Tyr Asp Asp Ala Ser Gln Ala Lys Ile Gln Glu Lys
35 40 45

cca tgg gcc tcc gat cct aac tac ttc aag cgc gtt cac atc tca gcc 312
Pro Trp Ala Ser Asp Pro Asn Tyr Phe Lys Arg Val His Ile Ser Ala
50 55 60

ctt gct ctt ctc aag atg gtg gtt cac gct cgc tcc ggt ggc aca atc 360
Leu Ala Leu Leu Lys Met Val Val His Ala Arg Ser Gly Gly Thr Ile
65 70 75

gag atc atg ggt ctt atg cag ggt aaa acc gag ggt gat aca atc atc 408
Glu Ile Met Gly Leu Met Gln Gly Lys Thr Glu Gly Asp Thr Ile Ile
80 85 90 95

gtt atg gat gct ttt gct ttg cct gtt gaa ggt act gag act agg gtt 456
Val Met Asp Ala Phe Ala Leu Pro Val Glu Gly Thr Glu Thr Arg Val
100 105 110

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aat gct cag tct gat gcc tat gag tat atg gtt gaa tac tct cag acc	504
Asn Ala Gln Ser Asp Ala Tyr Glu Tyr Met Val Glu Tyr Ser Gln Thr	
115 120 125	
agc aag ctg gct ggg agg ttg gag aac gtt gtt gga tgg tat cac tct	552
Ser Lys Leu Ala Gly Arg Leu Glu Asn Val Val Gly Trp Tyr His Ser	
130 135 140	
cac cct ggg tat gga tgt tgg ctc tcg ggt att gat gtt tcg aca cag	600
His Pro Gly Tyr Gly Cys Trp Leu Ser Gly Ile Asp Val Ser Thr Gln	
145 150 155	
atg ctt aac caa cag tat cag gag cca ttc tta gct gtt gtt att gat	648
Met Leu Asn Gln Gln Tyr Gln Glu Pro Phe Leu Ala Val Val Ile Asp	
160 165 170 175	
cca aca agg act gtt tcg gct ggt aag gtt gag att ggg gca ttc aga	696
Pro Thr Arg Thr Val Ser Ala Gly Lys Val Glu Ile Gly Ala Phe Arg	
180 185 190	
aca tat cca gag gga cat aag atc tcg gat gat cat gtt tct gag tat	744
Thr Tyr Pro Glu Gly His Lys Ile Ser Asp Asp His Val Ser Glu Tyr	
195 200 205	
cag act atc cct ctt aac aag att gag gac ttt ggt gta cat tgc aaa	792
Gln Thr Ile Pro Leu Asn Lys Ile Glu Asp Phe Gly Val His Cys Lys	
210 215 220	
cag tac tac tca ttg gac atc act tat ttc aag tca tct ctc gat agt	840
Gln Tyr Tyr Ser Leu Asp Ile Thr Tyr Phe Lys Ser Ser Leu Asp Ser	
225 230 235	
cac ctt ctg gat ctc ctt tgg aac aag tac tgg gtg aac act ctt tct	888
His Leu Leu Asp Leu Leu Trp Asn Lys Tyr Trp Val Asn Thr Leu Ser	
240 245 250 255	
tct tcc cca ctg ttg ggc aat gga gac tat gtt gcc ggg caa ata tca	936
Ser Ser Pro Leu Leu Gly Asn Gly Asp Tyr Val Ala Gly Gln Ile Ser	
260 265 270	
gac ttg gct gag aag ctc gag caa gcg gag agt cag ctc gct aac tcc	984
Asp Leu Ala Glu Lys Leu Glu Gln Ala Glu Ser Gln Leu Ala Asn Ser	
275 280 285	
cgg tat gga gga att gcg cca gcc ggt cac caa agg agg aaa gag gat	1032
Arg Tyr Gly Gly Ile Ala Pro Ala Gly His Gln Arg Arg Lys Glu Asp	
290 295 300	
gag cct caa ctc gcg aag ata act cgg gat agt gca aag ata act gtc	1080
Glu Pro Gln Leu Ala Lys Ile Thr Arg Asp Ser Ala Lys Ile Thr Val	
305 310 315	
gag cag gtc cat gga cta atg tca cag gtt atc aaa gac atc ttg ttc	1128
Glu Gln Val His Gly Leu Met Ser Gln Val Ile Lys Asp Ile Leu Phe	
320 325 330 335	

aat tcc gct cgt cag tcc aag aag tct gct gac gac tca tca gat cca 1176
 Asn Ser Ala Arg Gln Ser Lys Lys Ser Ala Asp Asp Ser Ser Asp Pro
 340 345 350

gag ccc atg att aca tcg tga agttggtcta ttcttttggtt ttttggctgc 1227
 Glu Pro Met Ile Thr Ser
 355

ggaaattgac tatcggtttg acccggttta tgaggcaatg cccattgttc cctatatctc 1287

tagtgtagta tctgcttcag acaaagatct ttgggttatt aaatgacatt aacataaaaa 1347

aaa 1350

<210> 76 <211> 357 <212> PRT <213> Arabidopsis thaliana <400> 76

Met Glu Gly Ser Ser Ser Ala Ile Ala Arg Lys Thr Trp Glu Leu Glu
 1 5 10 15

Asn Asn Ile Leu Pro Val Glu Pro Thr Asp Ser Ala Ser Asp Ser Ile
 20 25 30

Phe His Tyr Asp Asp Ala Ser Gln Ala Lys Ile Gln Gln Glu Lys Pro
 35 40 45

Trp Ala Ser Asp Pro Asn Tyr Phe Lys Arg Val His Ile Ser Ala Leu
 50 55 60

Ala Leu Leu Lys Met Val Val His Ala Arg Ser Gly Gly Thr Ile Glu
 65 70 75 80

Ile Met Gly Leu Met Gln Gly Lys Thr Glu Gly Asp Thr Ile Ile Val
 85 90 95

Met Asp Ala Phe Ala Leu Pro Val Glu Gly Thr Glu Thr Arg Val Asn
 100 105 110

Ala Gln Ser Asp Ala Tyr Glu Tyr Met Val Glu Tyr Ser Gln Thr Ser
 115 120 125

Lys Leu Ala Gly Arg Leu Glu Asn Val Val Gly Trp Tyr His Ser His
 130 135 140

Pro Gly Tyr Gly Cys Trp Leu Ser Gly Ile Asp Val Ser Thr Gln Met
 145 150 155 160

Leu Asn Gln Gln Tyr Gln Glu Pro Phe Leu Ala Val Val Ile Asp Pro
165 170 175

Thr Arg Thr Val Ser Ala Gly Lys Val Glu Ile Gly Ala Phe Arg Thr
180 185 190

Tyr Pro Glu Gly His Lys Ile Ser Asp Asp His Val Ser Glu Tyr Gln
195 200 205

Thr Ile Pro Leu Asn Lys Ile Glu Asp Phe Gly Val His Cys Lys Gln
210 215 220

Tyr Tyr Ser Leu Asp Ile Thr Tyr Phe Lys Ser Ser Leu Asp Ser His
225 230 235 240

Leu Leu Asp Leu Leu Trp Asn Lys Tyr Trp Val Asn Thr Leu Ser Ser
245 250 255

Ser Pro Leu Leu Gly Asn Gly Asp Tyr Val Ala Gly Gln Ile Ser Asp
260 265 270

Leu Ala Glu Lys Leu Glu Gln Ala Glu Ser Gln Leu Ala Asn Ser Arg
275 280 285

Tyr Gly Gly Ile Ala Pro Ala Gly His Gln Arg Arg Lys Glu Asp Glu
290 295 300

Pro Gln Leu Ala Lys Ile Thr Arg Asp Ser Ala Lys Ile Thr Val Glu
305 310 315 320

Gln Val His Gly Leu Met Ser Gln Val Ile Lys Asp Ile Leu Phe Asn
325 330 335

Ser Ala Arg Gln Ser Lys Lys Ser Ala Asp Asp Ser Ser Asp Pro Glu
340 345 350

Pro Met Ile Thr Ser
355

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<222> (1)..(795) <223> G343

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Met Asp Val Tyr Gly Leu Ser Ser Pro Asp Leu Leu Arg Ile Asp Asp	
1 5 10 15	
ctt ctt gat ttc tcc aac gaa gac atc ttc tcc gct tct tct tcc ggt	96
Leu Leu Asp Phe Ser Asn Glu Asp Phe Ser Ala Ser Ser Ser Gly	
20 25 30	
ggt tcc acc gcc gct act tcc tct tct tct ttc cct cct cct caa aac	144
Gly Ser Thr Ala Ala Thr Ser Ser Ser Ser Phe Pro Pro Pro Gln Asn	
35 40 45	
cct agt ttc cac cac cac cat ctc cct tcc tcc gcc gat cat cac tcc	192
Pro Ser Phe His His His His Leu Pro Ser Ser Ala Asp His His Ser	
50 55 60	
ttc ctc cac gac att tgc gtt ccc agt gat gac gca gct cat ctt gaa	240
Phe Leu His Asp Ile Cys Val Pro Ser Asp Asp Ala Ala His Leu Glu	
65 70 75 80	
tggt ctt tgg caa ttc gtg gac gat tct ttc gct gat ttt ccg gcg aat	288
Trp Leu Ser Gln Phe Val Asp Asp Ser Phe Ala Asp Phe Pro Ala Asn	
85 90 95	
cca tta gga gga act atg act tct gtc aaa act gaa act tcc ttt ccg	336
Pro Leu Gly Gly Thr Met Thr Ser Val Lys Thr Glu Thr Ser Phe Pro	
100 105 110	
ggg aaa cca aga agc aaa cga tca aga gct cct gct cct ttc gcc gga	384
Gly Lys Pro Arg Ser Lys Arg Ser Arg Ala Pro Ala Pro Phe Ala Gly	
115 120 125	
aca tgg tct ccg atg cca ctg gaa tcc gag cat cag cag ctt cac tcc	432
Thr Trp Ser Pro Met Pro Leu Glu Ser Glu His Gln Gln Leu His Ser	
130 135 140	
gcc gcc aaa ttc aag cca aag aaa gaa caa tcc gcc gga gga gga gga	480
Ala Ala Lys Phe Lys Pro Lys Lys Glu Gln Ser Gly Gly Gly Gly Gly	
145 150 155 160	
gga gga gga aga cat cag tca tgc tca tgc gag act acg gaa gga gga	528
Gly Gly Gly Arg His Gln Ser Ser Ser Ser Glu Thr Thr Glu Gly Gly	
165 170 175	
gga atg agg aga tgt act cac tgt gca tgc gag aaa acg cca cag tgg	576
Gly Met Arg Arg Cys Thr His Cys Ala Ser Glu Lys Thr Pro Gln Trp	
180 185 190	
agg aca gga cca ctt gga cct aaa aca cta tgt aac gct tgt gga gtc	624
Arg Thr Gly Pro Leu Gly Pro Lys Thr Leu Cys Asn Ala Cys Gly Val	
195 200 205	
cgg ttt aaa tcc ggt aga ctt gta ccg gaa tat aga ccg gct tgc agt	672
Arg Phe Lys Ser Gly Arg Leu Val Pro Glu Tyr Arg Pro Ala Ser Ser	
210 215 220	
cct act ttt gtt ttg act cag cat tca aac tct cac cgg aaa gtg atg	720
Pro Thr Phe Val Leu Thr Gln His Ser Asn Ser His Arg Lys Val Met	

Gly Met Arg Arg Cys Thr His Cys Ala Ser Glu Lys Thr Pro Gln Trp
180 185 190

Arg Thr Gly Pro Leu Gly Pro Lys Thr Leu Cys Asn Ala Cys Gly Val
195 200 205

Arg Phe Lys Ser Gly Arg Leu Val Pro Glu Tyr Arg Pro Ala Ser Ser
210 215 220

Pro Thr Phe Val Leu Thr Gln His Ser Asn Ser His Arg Lys Val Met
225 230 235 240

Glu Leu Arg Arg Gln Lys Glu Val Met Arg Gln Pro Gln Gln Val Gln
245 250 255

Leu His His His His His Pro Phe
260

<210> 79 <211> 727 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (82)..(570) <223> G353

<400> 79
accaaactca aaaaacacaa accacaagag gatcatttca ttttttattg tttcgtttta 60

atcatcatca tcagaagaaa a atg gtt gcg ata tcg gag atc aag tcg acg 111
Met Val Ala Ile Ser Glu Ile Lys Ser Thr
1 5 10

gtg gat gtc acg gcg gcg aat tgt ttg atg ctt tta tct aga gtt gga 159
Val Asp Val Thr Ala Ala Asn Cys Leu Met Leu Leu Ser Arg Val Gly
15 20 25

caa gaa aac gtt gac ggt ggc gat caa aaa cgc gtt ttc aca tgt aaa 207
Gln Glu Asn Val Asp Gly Gly Asp Gln Lys Arg Val Phe Thr Cys Lys
30 35 40

acg tgt ttg aag cag ttt cat tcg ttc caa gcc tta gga ggt cac cgt 255
Thr Cys Leu Lys Gln Phe His Ser Phe Gln Ala Leu Gly Gly His Arg
45 50 55

gcg agt cac aag aag cct aac aac gac gct ttg tcg tct gga ttg atg 303
Ala Ser His Lys Lys Pro Asn Asn Asp Ala Leu Ser Ser Gly Leu Met
60 65 70

aag aag gtg aaa acg tcg tcg cat cct tgt ccc ata tgt gga gtg gag 351
Lys Lys Val Lys Thr Ser Ser His Pro Cys Pro Ile Cys Gly Val Glu
75 80 85 90

ttt ccg atg gga caa gct ttg gga gga cac atg agg aga cac agg aac 399
Phe Pro Met Gly Gln Ala Leu Gly Gly His Met Arg Arg His Arg Asn
95 100 105

gag agt ggg gct gct ggt ggc gcg ttg gtt aca cgc gct ttg ttg cgg 447
 Glu Ser Gly Ala Ala Gly Gly Ala Leu Val Thr Arg Ala Leu Leu Pro
 110 115 120

gag ccc acg gtg act acg ttg aag aaa tct agc agt ggg aag aga gtg 495
 Glu Pro Thr Val Thr Thr Leu Lys Lys Ser Ser Ser Gly Lys Arg Val
 125 130 135

gct tgt ttg gat ctg agt cta ggg atg gtg gac aat ttg aat ctc aag 543
 Ala Cys Leu Asp Leu Ser Leu Gly Met Val Asp Asn Leu Asn Leu Lys
 140 145 150

ttg gag ctt gga aga aca gtt tat tga ttttatttat tttccttaaa 590
 Leu Glu Leu Gly Arg Thr Val Tyr
 155 160

ttttctgaat atatttggtt ctctcattct ttgaattttt cttaatatc tagattatac 650
 atacatccgc agatttagga aactttcata gagtgtaac ttttcttct gtaaaaatat 710
 attttacttg tagcaaa 727

<210> 80 <211> 162 <212> PRT <213> Arabidopsis thaliana <400> 80
 Met Val Ala Ile Ser Glu Ile Lys Ser Thr Val Asp Val Thr Ala Ala
 1 5 10 15

Asn Cys Leu Met Leu Leu Ser Arg Val Gly Gln Glu Asn Val Asp Gly
 20 25 30

Gly Asp Gln Lys Arg Val Phe Thr Cys Lys Thr Cys Leu Lys Gln Phe
 35 40 45

His Ser Phe Gln Ala Leu Gly Gly His Arg Ala Ser His Lys Lys Pro
 50 55 60

Asn Asn Asp Ala Leu Ser Ser Gly Leu Met Lys Lys Val Lys Thr Ser
 65 70 75 80

Ser His Pro Cys Pro Ile Cys Gly Val Glu Phe Pro Met Gly Gln Ala
 85 90 95

Leu Gly Gly His Met Arg Arg His Arg Asn Glu Ser Gly Ala Ala Gly
 100 105 110

Gly Ala Leu Val Thr Arg Ala Leu Leu Pro Glu Pro Thr Val Thr Thr
 115 120 125

Leu Lys Lys Ser Ser Ser Gly Lys Arg Val Ala Cys Leu Asp Leu Ser
130 135 140

Leu Gly Met Val Asp Asn Leu Asn Leu Lys Leu Glu Leu Gly Arg Thr
145 150 155 160

Val Tyr

<210> 81 <211> 628 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (27)..(533) <223> G354

<400> 81
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Met Val Ala Arg Ser Glu Glu Ile Val
1 5

ata gtg gaa gaa gat acg act gcg aaa tgt ttg atg ttg tta tca aga 101
Ile Val Glu Glu Asp Thr Thr Ala Lys Cys Leu Met Leu Leu Ser Arg
10 15 20 25

gtc gga gaa tgc gcc gcc gcc tgc ggg gga gat gaa cgt gtt ttc cga 149
Val Gly Glu Cys Gly Gly Gly Cys Gly Gly Asp Glu Arg Val Phe Arg
30 35 40

tgc aag act tgt ctt aaa gag ttc tca tcg ttt caa gct ttg gga ggt 197
Cys Lys Thr Cys Leu Lys Glu Phe Ser Ser Phe Gln Ala Leu Gly Gly
45 50 55

cat cgt gca agc cac aag aaa ctt atc aac agt gac aat cca tca ctt 245
His Arg Ala Ser His Lys Lys Leu Ile Asn Ser Asp Asn Pro Ser Leu
60 65 70

ctt gga tcc ttg tcc aac aag aaa act aaa acg tct cat cct tgt ccg 293
Leu Gly Ser Leu Ser Asn Lys Lys Thr Lys Thr Ser His Pro Cys Pro
75 80 85

ata tgt gga gtg aag ttt ccg atg gga caa gct ctt ggt ggt cac atg 341
Ile Cys Gly Val Lys Phe Pro Met Gly Gln Ala Leu Gly Gly His Met
90 95 100 105

agg aga cat agg aac gag aaa gtc tca gcc tcg ttg gtt aca cgt tct 389
Arg Arg His Arg Asn Glu Lys Val Ser Gly Ser Leu Val Thr Arg Ser
110 115 120

ttt cta ccg gag acg acg acg gtg acg gct ttg aag aaa ttt agt agt 437
Phe Leu Pro Glu Thr Thr Thr Val Thr Ala Leu Lys Lys Phe Ser Ser
125 130 135

ggg aag aga gtg gct tgt ttg gat ttg gac tta gat tcg atg gag agt 485
Gly Lys Arg Val Ala Cys Leu Asp Leu Asp Leu Asp Ser Met Glu Ser
140 145 150

ttg gtc aat tgg aag ttg gag ttg gga aga acg att tct tgg agt taa 533
 Leu Val Asn Trp Lys Leu Glu Leu Gly Arg Thr Ile Ser Trp Ser
 155 160 165

gtttttgggt tgtatacagt ttcacatgat tttgtaatct ttgttgatcc aattatcgta 593

cggatcgatg tgaatattat ttgtatacaa taaaa 628

<210> 82 <211> 168 <212> PRT <213> Arabidopsis thaliana <400> 82

Met Val Ala Arg Ser Glu Glu Ile Val Ile Val Glu Glu Asp Thr Thr
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Ala Lys Cys Leu Met Leu Leu Ser Arg Val Gly Glu Cys Gly Gly Gly
 20 25 30

Cys Gly Gly Asp Glu Arg Val Phe Arg Cys Lys Thr Cys Leu Lys Glu
 35 40 45

Phe Ser Ser Phe Gln Ala Leu Gly Gly His Arg Ala Ser His Lys Lys
 50 55 60

Leu Ile Asn Ser Asp Asn Pro Ser Leu Leu Gly Ser Leu Ser Asn Lys
 65 70 75 80

Lys Thr Lys Thr Ser His Pro Cys Pro Ile Cys Gly Val Lys Phe Pro
 85 90 95

Met Gly Gln Ala Leu Gly Gly His Met Arg Arg His Arg Asn Glu Lys
 100 105 110

Val Ser Gly Ser Leu Val Thr Arg Ser Phe Leu Pro Glu Thr Thr Thr
 115 120 125

Val Thr Ala Leu Lys Lys Phe Ser Ser Gly Lys Arg Val Ala Cys Leu
 130 135 140

Asp Leu Asp Leu Asp Ser Met Glu Ser Leu Val Asn Trp Lys Leu Glu
 145 150 155 160

Leu Gly Arg Thr Ile Ser Trp Ser
 165

<210> 83 <211> 615 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
 <222> (1)..(615) <223> G357

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 Met Gln Asn Lys His Lys Cys Lys Leu Cys Ser Phe Cys Asn
 1 5 10 15
 ggc aga gca ctt ggt ggt cac atg aag tct cac ttg gtc tca tct cag 96
 Gly Arg Ala Leu Gly Gly His Met Lys Ser His Leu Val Ser Ser Gln
 20 25 30
 tct tca gct cgg aag aaa cta ggt gac tcg gtc tat tct tct tct tcc 144
 Ser Ser Ala Arg Lys Lys Leu Gly Asp Ser Val Tyr Ser Ser Ser Ser
 35 40 45
 tct tcc tcc gat ggt aaa gcg ctc gcc tac ggg tta cga gag aac ccg 192
 Ser Ser Ser Asp Gly Lys Ala Leu Ala Tyr Gly Leu Arg Glu Asn Pro
 50 55 60
 agg aag agt ttc cgg gtc ttt aat ccg gat cct gag tca tcc aca att 240
 Arg Lys Ser Phe Arg Val Phe Asn Pro Asp Pro Glu Ser Ser Thr Ile
 65 70 75 80
 tac aac agt gag aca gag acc gaa cct gaa tcc gga gac ccg gtt aag 288
 Tyr Asn Ser Glu Thr Glu Thr Glu Pro Glu Ser Gly Asp Pro Val Lys
 85 90 95
 aaa cgg gtc aga gga gat gtt tca aag aag aag aag aag gca aag 336
 Lys Arg Val Arg Gly Asp Val Ser Lys Lys Lys Lys Lys Ala Lys
 100 105 110
 agt aag aga gtg ttt gag aac tcg aag aag caa aag aca att cac gag 384
 Ser Lys Arg Val Phe Glu Asn Ser Lys Lys Gln Lys Thr Ile His Glu
 115 120 125
 tca cca gaa cca gcg agt tct gtc tct gat ggt tct cct gaa caa gat 432
 Ser Pro Glu Pro Ala Ser Ser Val Ser Asp Gly Ser Pro Glu Gln Asp
 130 135 140
 tta gct atg tgc ttg atg atg ctg tca aga gat tca agg gag ctc gag 480
 Leu Ala Met Cys Leu Met Met Leu Ser Arg Asp Ser Arg Glu Leu Glu
 145 150 155 160
 att aaa ctg aaa aaa ccg gag gaa gag agg aag ccg gaa aaa aga cat 528
 Ile Lys Leu Lys Lys Pro Glu Glu Glu Arg Lys Pro Glu Lys Arg His
 165 170 175
 ttc cct gag ctc cgt cgc tgt atg ata gat ctg aat ctt cct ccg ccg 576
 Phe Pro Glu Leu Arg Arg Cys Met Ile Asp Leu Asn Leu Pro Pro Pro
 180 185 190
 caa gaa gct gaa gct gtc acc gtc gtt tca gcc ata taa 615
 Gln Glu Ala Glu Ala Val Thr Val Val Ser Ala Ile
 195 200

<210> 84 <211> 204 <212> PRT <213> Arabidopsis thaliana <400> 84

Met Gln Asn Lys His Lys Cys Lys Leu Cys Ser Lys Ser Phe Cys Asn
1 5 10 15

Gly Arg Ala Leu Gly Gly His Met Lys Ser His Leu Val Ser Ser Gln
20 25 30

Ser Ser Ala Arg Lys Lys Leu Gly Asp Ser Val Tyr Ser Ser Ser Ser
35 40 45

Ser Ser Ser Asp Gly Lys Ala Leu Ala Tyr Gly Leu Arg Glu Asn Pro
50 55 60

Arg Lys Ser Phe Arg Val Phe Asn Pro Asp Pro Glu Ser Ser Thr Ile
65 70 75 80

Tyr Asn Ser Glu Thr Glu Thr Glu Pro Glu Ser Gly Asp Pro Val Lys
85 90 95

Lys Arg Val Arg Gly Asp Val Ser Lys Lys Lys Lys Lys Lys Ala Lys
100 105 110

Ser Lys Arg Val Phe Glu Asn Ser Lys Lys Gln Lys Thr Ile His Glu
115 120 125

Ser Pro Glu Pro Ala Ser Ser Val Ser Asp Gly Ser Pro Glu Gln Asp
130 135 140

Leu Ala Met Cys Leu Met Met Leu Ser Arg Asp Ser Arg Glu Leu Glu
145 150 155 160

Ile Lys Leu Lys Lys Pro Glu Glu Glu Arg Lys Pro Glu Lys Arg His
165 170 175

Phe Pro Glu Leu Arg Arg Cys Met Ile Asp Leu Asn Leu Pro Pro Pro
180 185 190

Gln Glu Ala Glu Ala Val Thr Val Val Ser Ala Ile
195 200

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 Met Asp Tyr Gln Pro Asn Thr Ser Leu Arg Leu Ser Leu Pro Ser
 1 5 10 15
 tac aag aac cac caa cta aac cta gaa ctt gtt ctc gag cct tct tcc 156
 Tyr Lys Asn His Gln Leu Asn Leu Glu Leu Val Leu Glu Pro Ser Ser
 20 25 30
 atg tct tct tct tca tct tct tcc acg aac tca tca tca tgt ttg gag 204
 Met Ser Ser Ser Ser Ser Ser Ser Thr Asn Ser Ser Ser Cys Leu Glu
 35 40 45
 cag cct agg gta ttc tca tgt aac tat tgt caa aga aag ttt tac agc 252
 Gln Pro Arg Val Phe Ser Cys Asn Tyr Cys Gln Arg Lys Phe Tyr Ser
 50 55 60
 tct caa gct ctt ggt ggt cat caa aac gct cat aag ctt gag aga acc 300
 Ser Gln Ala Leu Gly Gly His Gln Asn Ala His Lys Leu Glu Arg Thr
 65 70 75
 tta gcc aag aag agt cga gaa ctc ttt aga tcc tca aac act gtt gat 348
 Leu Ala Lys Lys Ser Arg Glu Leu Phe Arg Ser Ser Asn Thr Val Asp
 80 85 90 95
 tct gat cag cct tac ccg ttc tcc ggt cgc ttt gag ctt tac ggc cgt 396
 Ser Asp Gln Pro Tyr Pro Phe Ser Gly Arg Phe Glu Leu Tyr Gly Arg
 100 105 110
 ggc tac caa gga ttt ctc gaa agt ggc ggc tcg agg gac ttc tcc gcc 444
 Gly Tyr Gln Gly Phe Leu Glu Ser Gly Gly Ser Arg Asp Phe Ser Ala
 115 120 125
 cgc cgt gtg ccg gag agt ggt ctt gat cag gat cag gag aag agt cac 492
 Arg Arg Val Pro Glu Ser Gly Leu Asp Gln Asp Gln Glu Lys Ser His
 130 135 140
 ctt gac tta tcc tta agg ctc taa aagaatctta tatattgtta gtctatat 546
 Leu Asp Leu Ser Leu Arg Leu
 145 150
 tatcatatca attgttaac ttaaaattga ttgttttact tattagtcac ttctattat 606
 ctgaaagttt tctttgtaag ttgtaactat ggtcctaaat tcaaatccaa atttgatttt 666
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Lys Asn His Gln Leu Asn Leu Glu Leu Val Leu Glu Pro Ser Ser Met

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25

30

Ser Ser Ser Ser Ser Ser Ser Thr Asn Ser Ser Ser Cys Leu Glu Gln
35 40 45

Pro Arg Val Phe Ser Cys Asn Tyr Cys Gln Arg Lys Phe Tyr Ser Ser
50 55 60

Gln Ala Leu Gly Gly His Gln Asn Ala His Lys Leu Glu Arg Thr Leu
65 70 75 80

Ala Lys Lys Ser Arg Glu Leu Phe Arg Ser Ser Asn Thr Val Asp Ser
85 90 95

Asp Gln Pro Tyr Pro Phe Ser Gly Arg Phe Glu Leu Tyr Gly Arg Gly
100 105 110

Tyr Gln Gly Phe Leu Glu Ser Gly Gly Ser Arg Asp Phe Ser Ala Arg
115 120 125

Arg Val Pro Glu Ser Gly Leu Asp Gln Asp Gln Glu Lys Ser His Leu
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Leu Leu Ala Ala Met Asn Asn Ala Asp Ser Asn Asn His Asn Tyr Asn
10 15 20

cac gaa gac aac aat aat gaa gga ttt ctt cgg gac gat gaa ttc gac 150
His Glu Asp Asn Asn Asn Glu Gly Phe Leu Arg Asp Asp Glu Phe Asp
25 30 35

agt cgg aat act aaa tcg gga agt gag aat caa gaa gga gga tca gga 198
Ser Pro Asn Thr Lys Ser Gly Ser Glu Asn Gln Glu Gly Gly Ser Gly
40 45 50

aac gac caa gat cct ctt cat cct aac aag aag aaa cga tat cat cga 246
Asn Asp Gln Asp Pro Leu His Pro Asn Lys Lys Lys Arg Tyr His Arg

55	60	65	70	
cac acc caa ctt	cag atc cag gag atg	gaa gcg ttc ttc aaa gag tgt	294	
His Thr Gln Leu	Gln Ile Gln Glu Met	Glu Ala Phe Phe Lys Glu Cys		
	75	80	85	
cct cac cca gat	gac aag caa agg aaa cag	cta agc cgt gaa ttg aat	342	
Pro His Pro Asp	Lys Gln Arg Lys Gln Leu Ser Arg Glu Leu Asn			
	90	95	100	
ttg gaa cct ctt	cag gtc aaa ttc tgg ttc	caa aac aaa cgt acc caa	390	
Leu Glu Pro Leu	Gln Val Lys Phe Trp Phe Gln Asn Lys Arg Thr Gln			
	105	110	115	
atg aag aat cat	cac gag cgg cat gag aac	tca cat ctt cgg gcg gag	438	
Met Lys Asn His His	Glu Arg His Glu Asn Ser His	Leu Arg Ala Glu		
	120	125	130	
aac gaa aag ctt	cga aac gac aac cta aga	tat cga gag gct ctt gca	486	
Asn Glu Lys Leu Arg	Asn Asp Asn Leu Arg Tyr Arg Glu Ala Leu Ala			
	135	140	145	150
aat gct tgc tgt	cct aat tgt ggt ggt cca	aca gct atc gga gaa atg	534	
Asn Ala Ser Cys	Pro Asn Cys Gly Gly Pro Thr Ala Ile Gly Glu Met			
	155	160	165	
tca ttc gac gaa	cac caa ctc cgt ctc	gaa aat gct cga tta agg gaa	582	
Ser Phe Asp Glu	His Gln Leu Arg Leu Glu Asn Ala Arg Leu Arg Glu			
	170	175	180	
gag atc gac cgt	ata tcc gca atc gca gct	aaa tac gta ggc aag cca	630	
Glu Ile Asp Arg	Ile Ser Ala Ile Ala Ala Lys Tyr Val Gly Lys Pro			
	185	190	195	
gtc tca aac tat	cca ctt atg tct cct cct cct ctt	cct cca cgt cca	678	
Val Ser Asn Tyr	Pro Leu Met Ser Pro Pro Pro Leu Pro Pro Arg Pro			
	200	205	210	
cta gaa ctc gcc	atg gga aat att gga gga	gaa gct tat gga aac aat	726	
Leu Glu Leu Ala	Met Gly Asn Ile Gly Gly Glu Ala Tyr Gly Asn Asn			
	215	220	225	230
cca aac gat ctc	ctt aag tcc atc act gca	cca aca gaa tct gac aaa	774	
Pro Asn Asp Leu	Leu Lys Ser Ile Thr Ala Pro Thr Glu Ser Asp Lys			
	235	240	245	
cct gtc atc atc	gac tta tcc gtg gct gca	atg gaa gag ctc atg agg	822	
Pro Val Ile Ile	Asp Leu Ser Val Ala Ala Met Glu Glu Leu Met Arg			
	250	255	260	
atg gtt caa gta	gac gag cct ctg tgg aag agt	ttg gct tta gac gaa	870	
Met Val Gln Val	Asp Glu Pro Leu Trp Lys Ser Leu Ala Leu Asp Glu			
	265	270	275	
gaa gaa tat gca	agg acc ttt cct aga ggg atc	gga cct aga ccg gct	918	
Glu Glu Tyr Ala	Arg Thr Phe Pro Arg Gly Ile Gly Pro Arg Pro Ala			
	280	285	290	

gga tat aga tca gaa gct tcg cga gaa agc gcg gtt gtg atc atg aat	966
Gly Tyr Arg Ser Glu Ala Ser Arg Glu Ser Ala Val Val Ile Met Asn	
295 300 305 310	
cat gtt aac atc gtt gag att ctg atg gat gtg aat caa tgg tcg acg	1014
His Val Asn Ile Val Glu Ile Leu Met Asp Val Asn Gln Trp Ser Thr	
315 320 325	
att ttc gcg ggg atg gtt tct aga gca atg aca tta gcg gtt tta tcg	1062
Ile Phe Ala Gly Met Val Ser Arg Ala Met Thr Leu Ala Val Leu Ser	
330 335 340	
aca gga gtt gca gga aac tat aat gga gct ctt caa gtg atg agc gca	1110
Thr Gly Val Ala Gly Asn Tyr Asn Gly Ala Leu Gln Val Met Ser Ala	
345 350 355	
gag ttt caa gtt cca tct cca tta gtc cca aca cgt gaa acc tat ttc	1158
Glu Phe Gln Val Pro Ser Pro Leu Val Pro Thr Arg Glu Thr Tyr Phe	
360 365 370	
gca cgt tac tgt aaa caa caa gga gat ggt tcg tgg gcg gtt gtc gat	1206
Ala Arg Tyr Cys Lys Gln Gln Gly Asp Gly Ser Trp Ala Val Val Asp	
375 380 385 390	
att tcg ttg gat agt ctg caa cca aat ccc ccg gct aga tgc agg cgg	1254
Ile Ser Leu Asp Ser Leu Gln Pro Asn Pro Pro Ala Arg Cys Arg Arg	
395 400 405	
oga gct tca gga tgt ttg att caa gaa ttg cca aat gga tat tct aag	1302
Arg Ala Ser Gly Cys Leu Ile Gln Glu Leu Pro Asn Gly Tyr Ser Lys	
410 415 420	
gtg act tgg gtg gag cat gtg gaa gtt gat gac aga gga gtt cat aac	1350
Val Thr Trp Val Val Glu His Val Glu Val Asp Asp Arg Gly Val His Asn	
425 430 435	
tta tac aaa cac atg gtt agt act ggt cat gcc ttc ggt gct aaa cgc	1398
Leu Tyr Lys His Met Val Ser Thr Gly His Ala Phe Gly Ala Lys Arg	
440 445 450	
tgg gta gcc att ctt gac cgc caa tgc gag cgg tta gct agt gtc atg	1446
Trp Val Ala Ile Leu Asp Arg Gln Cys Glu Arg Leu Ala Ser Val Met	
455 460 465 470	
gct aca aac att tcc tct gga gaa gtt ggc gtg ata acc aac caa gaa	1494
Ala Thr Asn Ile Ser Ser Gly Glu Val Gly Val Ile Thr Asn Gln Glu	
475 480 485	
ggg agg agg agt atg ctg aaa ttg gca gag cgg atg gtt ata agc ttt	1542
Gly Arg Arg Ser Met Leu Lys Leu Ala Glu Arg Met Val Ile Ser Phe	
490 495 500	
tgt gca gga gtg agt gct tca acc gct cac acg tgg act aca ttg tcc	1590
Cys Ala Gly Val Ser Ala Ser Thr Ala His Thr Trp Thr Thr Leu Ser	
505 510 515	

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 Gly Thr Gly Ala Glu Asp Val Arg Val Met Thr Arg Lys Ser Val Asp
 520 525 530
 gat cca gga agg tct cct ggt att gtt ctt agt gca gcc act tct ttt 1686
 Asp Pro Gly Arg Ser Pro Gly Ile Val Leu Ser Ala Ala Thr Ser Phe
 535 540 545 550
 tgg atc cct gtt cct cca aag cga gtc ttt gac ttc ctc aga gac gag 1734
 Trp Ile Pro Val Pro Lys Arg Val Phe Asp Phe Leu Arg Asp Glu
 555 560 565
 aat tca aga aat gag tgg gat att ctg tct aat gga gga gtt gtg caa 1782
 Asn Ser Arg Asn Glu Trp Asp Ile Leu Ser Asn Gly Gly Val Gln
 570 575 580
 gaa atg gca cat att gct aac ggg agg gat acc gga aac tgt gtt tct 1830
 Glu Met Ala His Ile Ala Asn Gly Arg Asp Thr Gly Asn Cys Val Ser
 585 590 595
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 Leu Leu Arg Val Asn Ser Ala Asn Ser Ser Gln Ser Asn Met Leu Ile
 600 605 610
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 615 620 625 630
 cca gtc gat att gta gct atg aac ata gtg ctt aat gga ggt gat cca 1974
 Pro Val Asp Ile Val Ala Met Asn Ile Val Leu Asn Gly Gly Asp Pro
 635 640 645
 gac tat gtg gct ctg ctt cca tca ggt ttt gct att ctt cct gat ggt 2022
 Asp Tyr Val Ala Leu Leu Pro Ser Gly Phe Ala Ile Leu Pro Asp Gly
 650 655 660
 aat gcc aat agt gga gcc cct gga gga gat gga ggg tgc ctc ttg act 2070
 Asn Ala Asn Ser Gly Ala Pro Gly Gly Asp Gly Ser Leu Leu Thr
 665 670 675
 gtt gct ttt cag att ctg gtt gac tca gtt cct acg gct aag ctg tct 2118
 Val Ala Phe Gln Ile Leu Val Asp Ser Val Pro Thr Ala Lys Leu Ser
 680 685 690
 ctt ggc tct gtt gca act gtc aat aat cta ata gct tgc act gtt gag 2166
 Leu Gly Ser Val Ala Thr Val Asn Asn Leu Ile Ala Cys Thr Val Glu
 695 700 705 710
 aga atc aaa gct tca atg tct tgt gag act gct tga aaaccatcca ttagc 2217
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Arg Asp Asp Glu Phe Asp Ser Pro Asn Thr Lys Ser Gly Ser Glu Asn
35 40 45

Gln Glu Gly Gly Ser Gly Asn Asp Gln Asp Pro Leu His Pro Asn Lys
50 55 60

Lys Lys Arg Tyr His Arg His Thr Gln Leu Gln Ile Gln Glu Met Glu
65 70 75 80

Ala Phe Phe Lys Glu Cys Pro His Pro Asp Asp Lys Gln Arg Lys Gln
85 90 95

Leu Ser Arg Glu Leu Asn Leu Glu Pro Leu Gln Val Lys Phe Trp Phe
100 105 110

Gln Asn Lys Arg Thr Gln Met Lys Asn His His Glu Arg His Glu Asn
115 120 125

Ser His Leu Arg Ala Glu Asn Glu Lys Leu Arg Asn Asp Asn Leu Arg
130 135 140

Tyr Arg Glu Ala Leu Ala Asn Ala Ser Cys Pro Asn Cys Gly Gly Pro
145 150 155 160

Thr Ala Ile Gly Glu Met Ser Phe Asp Glu His Gln Leu Arg Leu Glu
165 170 175

Asn Ala Arg Leu Arg Glu Glu Ile Asp Arg Ile Ser Ala Ile Ala Ala
180 185 190

Lys Tyr Val Gly Lys Pro Val Ser Asn Tyr Pro Leu Met Ser Pro Pro
195 200 205

Pro Leu Pro Pro Arg Pro Leu Glu Leu Ala Met Gly Asn Ile Gly Gly
210 215 220

Glu Ala Tyr Gly Asn Asn Pro Asn Asp Leu Leu Lys Ser Ile Thr Ala
225 230 235 240

Pro Thr Glu Ser Asp Lys Pro Val Ile Ile Asp Leu Ser Val Ala Ala
 245 250 255

Met Glu Glu Leu Met Arg Met Val Gln Val Asp Glu Pro Leu Trp Lys
 260 265 270

Ser Leu Ala Leu Asp Glu Glu Glu Tyr Ala Arg Thr Phe Pro Arg Gly
 275 280 285

Ile Gly Pro Arg Pro Ala Gly Tyr Arg Ser Glu Ala Ser Arg Glu Ser
 290 295 300

Ala Val Val Ile Met Asn His Val Asn Ile Val Glu Ile Leu Met Asp
 305 310 315 320

Val Asn Gln Trp Ser Thr Ile Phe Ala Gly Met Val Ser Arg Ala Met
 325 330 335

Thr Leu Ala Val Leu Ser Thr Gly Val Ala Gly Asn Tyr Asn Gly Ala
 340 345 350

Leu Gln Val Met Ser Ala Glu Phe Gln Val Pro Ser Pro Leu Val Pro
 355 360 365

Thr Arg Glu Thr Tyr Phe Ala Arg Tyr Cys Lys Gln Gln Gly Asp Gly
 370 375 380

Ser Trp Ala Val Val Asp Ile Ser Leu Asp Ser Leu Gln Pro Asn Pro
 385 390 395 400

Pro Ala Arg Cys Arg Arg Arg Ala Ser Gly Cys Leu Ile Gln Glu Leu
 405 410 415

Pro Asn Gly Tyr Ser Lys Val Thr Trp Val Glu His Val Glu Val Asp
 420 425 430

Asp Arg Gly Val His Asn Leu Tyr Lys His Met Val Ser Thr Gly His
 435 440 445

Ala Phe Gly Ala Lys Arg Trp Val Ala Ile Leu Asp Arg Gln Cys Glu
 450 455 460

Arg Leu Ala Ser Val Met Ala Thr Asn Ile Ser Ser Gly Glu Val Gly
465 470 475 480

Val Ile Thr Asn Gln Glu Gly Arg Arg Ser Met Leu Lys Leu Ala Glu
485 490 495

Arg Met Val Ile Ser Phe Cys Ala Gly Val Ser Ala Ser Thr Ala His
500 505 510

Thr Trp Thr Thr Leu Ser Gly Thr Gly Ala Glu Asp Val Arg Val Met
515 520 525

Thr Arg Lys Ser Val Asp Asp Pro Gly Arg Ser Pro Gly Ile Val Leu
530 535 540

Ser Ala Ala Thr Ser Phe Trp Ile Pro Val Pro Pro Lys Arg Val Phe
545 550 555 560

Asp Phe Leu Arg Asp Glu Asn Ser Arg Asn Glu Trp Asp Ile Leu Ser
565 570 575

Asn Gly Gly Val Val Gln Glu Met Ala His Ile Ala Asn Gly Arg Asp
580 585 590

Thr Gly Asn Cys Val Ser Leu Leu Arg Val Asn Ser Ala Asn Ser Ser
595 600 605

Gln Ser Asn Met Leu Ile Leu Gln Glu Ser Cys Ile Asp Pro Thr Ala
610 615 620

Ser Phe Val Ile Tyr Ala Pro Val Asp Ile Val Ala Met Asn Ile Val
625 630 635 640

Leu Asn Gly Gly Asp Pro Asp Tyr Val Ala Leu Leu Pro Ser Gly Phe
645 650 655

Ala Ile Leu Pro Asp Gly Asn Ala Asn Ser Gly Ala Pro Gly Gly Asp
660 665 670

Gly Gly Ser Leu Leu Thr Val Ala Phe Gln Ile Leu Val Asp Ser Val
675 680 685

Pro Thr Ala Lys Leu Ser Leu Gly Ser Val Ala Thr Val Asn Asn Leu

690

695

700

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 Ser Gln Gln Lys Glu Pro Ser Leu Arg Leu Asn Leu Met Pro Leu Thr
 20 25 30
 act tct tct tct tct tct tcg ttt caa cac atg cac aat cag aat aac 144
 Thr Ser Ser Ser Ser Ser Ser Phe Gln His Met His Asn Gln Asn Asn
 35 40 45
 aat agc cat ccc cag aag att cat aac atc tct tgg act cat ctg ttt 192
 Asn Ser His Pro Gln Lys Ile His Asn Ile Ser Trp Thr His Leu Phe
 50 55 60
 caa tct tct ggg att aaa cgt aca act gca gag aga aac tcc gac gcc 240
 Gln Ser Ser Gly Ile Lys Arg Thr Thr Ala Glu Arg Asn Ser Asp Ala
 65 70 75 80
 ggg tca ttt cta aga ggt ttc aac gtg aac aga gct cag tct tcg gtg 288
 Gly Ser Phe Leu Arg Gly Phe Asn Val Asn Arg Ala Gln Ser Ser Val
 85 90 95
 gcg gta gtg gac ttg gaa gaa gaa gcc gcc gtc gtc tcg tct cca aac 336
 Ala Val Val Asp Leu Glu Glu Glu Ala Ala Val Val Ser Ser Pro Asn
 100 105 110
 agc gcc gtt tcg agt ctg agt gga aat aaa agg gat ctt gcg gtg gcg 384
 Ser Ala Val Ser Ser Leu Ser Gly Asn Lys Arg Asp Leu Ala Val Ala
 115 120 125
 aga gga gga gat gaa aac gag gcg gag aga gct tct tgc tca cgc gga 432
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 130 135 140
 ggg gga agc ggt ggt agc gac gat gaa gac gcc gga aac gcc gac gga 480
 Gly Gly Ser Gly Gly Ser Asp Asp Glu Asp Gly Gly Asn Gly Asp Gly
 145 150 155 160
 tca agg aag aaa cta cgg tta tcg aag gat caa gct ctt gtt ctc gag 528
 Ser Arg Lys Lys Leu Arg Leu Ser Lys Asp Gln Ala Leu Val Leu Glu

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	180 185 190					
	cta gca aaa cag ttg aat cta agg gca aga caa gtt gaa gtg tgg ttt	624				
	Leu Ala Lys Gln Leu Asn Leu Arg Ala Arg Gln Val Glu Val Trp Phe					
	195 200 205					
	cag aac cgt agg gca agg acg aag ctg aaa caa acg gag gtt gat tgt	672				
	Gln Asn Arg Arg Ala Arg Thr Lys Leu Lys Gln Thr Glu Val Asp Cys					
	210 215 220					
	gag tat tta aag aga tgt tgc gat aat ctg acc gag gag aat cga cgg	720				
	Glu Tyr Leu Lys Arg Cys Cys Asp Asn Leu Thr Glu Glu Asn Arg Arg					
	225 230 235 240					
	ctg cag aaa gaa gtg tgc gag ctg agg gcg ttg aag ttg tct cca cat	768				
	Leu Gln Lys Glu Val Ser Glu Leu Arg Ala Leu Lys Leu Ser Pro His					
	245 250 255					
	ctc tac atg cac atg act cct cct act act ctc acc atg tgc cct tct	816				
	Leu Tyr Met His Met Thr Pro Pro Thr Thr Leu Thr Met Cys Pro Ser					
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	tgc gaa cgt gtc tcc tcc tct gcc gcc act gtg acc gct gct cct tcc	864				
	Cys Glu Arg Val Ser Ser Ser Ala Ala Thr Val Thr Ala Ala Pro Ser					
	275 280 285					
	act act act act cct acg gtg gtg ggg cgg cca agt cca cag cga tta	912				
	Thr Thr Thr Thr Pro Thr Val Val Gly Arg Pro Ser Pro Gln Arg Leu					
	290 295 300					
	act cct tgg act gct att tct ctc cag caa aaa tca ggt cgc tag	957				
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	Thr Ser Ser Ser Ser Ser Phe Gln His Met His Asn Gln Asn Asn					
	35 40 45					
	Asn Ser His Pro Gln Lys Ile His Asn Ile Ser Trp Thr His Leu Phe					
	50 55 60					

Gln Ser Ser Gly Ile Lys Arg Thr Thr Ala Glu Arg Asn Ser Asp Ala
65 70 75 80

Gly Ser Phe Leu Arg Gly Phe Asn Val Asn Arg Ala Gln Ser Ser Val
85 90 95

Ala Val Val Asp Leu Glu Glu Glu Ala Ala Val Val Ser Ser Pro Asn
100 105 110

Ser Ala Val Ser Ser Leu Ser Gly Asn Lys Arg Asp Leu Ala Val Ala
115 120 125

Arg Gly Gly Asp Glu Asn Glu Ala Glu Arg Ala Ser Cys Ser Arg Gly
130 135 140

Gly Gly Ser Gly Gly Ser Asp Asp Glu Asp Gly Gly Asn Gly Asp Gly
145 150 155 160

Ser Arg Lys Lys Leu Arg Leu Ser Lys Asp Gln Ala Leu Val Leu Glu
165 170 175

Glu Thr Phe Lys Glu His Ser Thr Leu Asn Pro Lys Gln Lys Leu Ala
180 185 190

Leu Ala Lys Gln Leu Asn Leu Arg Ala Arg Gln Val Glu Val Trp Phe
195 200 205

Gln Asn Arg Arg Ala Arg Thr Lys Leu Lys Gln Thr Glu Val Asp Cys
210 215 220

Glu Tyr Leu Lys Arg Cys Cys Asp Asn Leu Thr Glu Glu Asn Arg Arg
225 230 235 240

Leu Gln Lys Glu Val Ser Glu Leu Arg Ala Leu Lys Leu Ser Pro His
245 250 255

Leu Tyr Met His Met Thr Pro Pro Thr Thr Leu Thr Met Cys Pro Ser
260 265 270

Cys Glu Arg Val Ser Ser Ser Ala Ala Thr Val Thr Ala Ala Pro Ser
275 280 285

Thr Thr Thr Thr Pro Thr Val Val Gly Arg Pro Ser Pro Gln Arg Leu

290

295

300

Thr Pro Trp Thr Ala Ile Ser Leu Gln Gln Lys Ser Gly Arg
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tatacaa atg gca atg gct tta aac atg aat gct tac gta gac gag ttc 169
 Met Ala Met Ala Leu Asn Met Asn Ala Tyr Val Asp Glu Phe
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atg gaa gct ctt gaa cca ttc atg aag gta act tca tct tct tct act 217
 Met Glu Ala Leu Glu Pro Phe Met Lys Val Thr Ser Ser Ser Ser Thr
 15 20 25 30

tcg aat tca tca aat cca aaa cca tta act cct aat ttc atc cct aat 265
 Ser Asn Ser Ser Asn Pro Lys Pro Leu Thr Pro Asn Phe Ile Pro Asn
 35 40 45

aat gac caa gtc tta cgg gta tct aac caa acc ggt cgg att ggg cta 313
 Asn Asp Gln Val Leu Pro Val Ser Asn Gln Thr Gly Pro Ile Gly Leu
 50 55 60

aac cag ctc act cca aca caa atc ctc caa att cag aca gag tta cat 361
 Asn Gln Leu Thr Pro Thr Gln Ile Leu Gln Ile Gln Thr Glu Leu His
 65 70 75

ctc cgg caa aac caa tct cgt cgt cgc gct ggt agt cat ctt ctc acc 409
 Leu Arg Gln Asn Gln Ser Arg Arg Arg Ala Gly Ser His Leu Leu Thr
 80 85 90

gct aaa cca acc tca atg aag aaa atc gac gta gca act aaa cgg gtt 457
 Ala Lys Pro Thr Ser Met Lys Lys Ile Asp Val Ala Thr Lys Pro Val
 95 100 105 110

aaa cta tac cga ggc gta aga cag agg caa tgg ggt aaa tgg gta gct 505
 Lys Leu Tyr Arg Gly Val Arg Gln Arg Gln Trp Gly Lys Trp Val Ala
 115 120 125

gag att cgg cta cct aaa aac cga acc cgg tta tgg ctc ggt acg ttc 553
 Glu Ile Arg Leu Pro Lys Asn Arg Thr Arg Leu Trp Leu Gly Thr Phe
 130 135 140

gaa acg gct caa gaa gct gca tta gct tac gat caa gca gct cat aag 601
 Glu Thr Ala Gln Glu Ala Ala Leu Ala Tyr Asp Gln Ala Ala His Lys
 145 150 155

atc aga gga gac aac gct cgt ctc aat ttc cca gac att gtt cgt caa 649
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160	165	170	
gga cac tat aaa cag ata ttg tct ccg tct atc aac gca aag atc gaa			697
Gly His Tyr Lys Gln Ile Leu Ser Pro Ser Ile Asn Ala Lys Ile Glu			
175	180	185	190
tcc atc tgc aat agt tct gat ctt cca ctg cct cag atc gag aaa cag			745
Ser Ile Cys Asn Ser Ser Asp Leu Pro Leu Pro Gln Ile Glu Lys Gln			
	195	200	205
aac aaa aca gag gag gtg ctc tct ggt ttt tcc aaa ccg gag aaa gaa			793
Asn Lys Thr Glu Glu Val Leu Ser Gly Phe Ser Lys Pro Glu Lys Glu			
	210	215	220
ccg gaa ttt ggg gag ata tac gga tgc gga tac tcg ggc tca tct cct			841
Pro Glu Phe Gly Glu Ile Tyr Gly Cys Gly Tyr Ser Gly Ser Ser Pro			
	225	230	235
gag tcg gat ata acg ttg ttg gat ttc tca agc gac tgt gtg aaa gaa			889
Glu Ser Asp Ile Thr Leu Leu Asp Phe Ser Ser Asp Cys Val Lys Glu			
	240	245	250
gat gag agt ttc ttg atg ggt ttg cac aag tat cct tct ttg gag att			937
Asp Glu Ser Phe Leu Met Gly Leu His Lys Tyr Pro Ser Leu Glu Ile			
	255	260	265
gat tgg gac gct ata gag aaa ctc ttc tga atccatttta tctttttgat			987
Asp Trp Asp Ala Ile Glu Lys Leu Phe			
	275		
tcatttgtct ctcaattgta gaatttttatt ttcagagctt tgtaaggga gttcttgaat			1047
gagagttgca gaggactagt ggaacctaac tctgttttct tttgtaagta ttgtttataa			1107
tgggccgttg aatgggcctt attgatattaa acagcccaag tttttaaaaa aaaaaaaaaa			1167
aaaaaaaaaa			1177
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Ala Leu Glu Pro Phe Met Lys Val Thr Ser Ser Ser Ser Thr Ser Asn			
	20	25	30
Ser Ser Asn Pro Lys Pro Leu Thr Pro Asn Phe Ile Pro Asn Asn Asp			
	35	40	45
Gln Val Leu Pro Val Ser Asn Gln Thr Gly Pro Ile Gly Leu Asn Gln			
	50	55	60

Leu Thr Pro Thr Gln Ile Leu Gln Ile Gln Thr Glu Leu His Leu Arg
 65 70 75 80

Gln Asn Gln Ser Arg Arg Arg Ala Gly Ser His Leu Leu Thr Ala Lys
 85 90 95

Pro Thr Ser Met Lys Lys Ile Asp Val Ala Thr Lys Pro Val Lys Leu
 100 105 110

Tyr Arg Gly Val Arg Gln Arg Gln Trp Gly Lys Trp Val Ala Glu Ile
 115 120 125

Arg Leu Pro Lys Asn Arg Thr Arg Leu Trp Leu Gly Thr Phe Glu Thr
 130 135 140

Ala Gln Glu Ala Ala Leu Ala Tyr Asp Gln Ala Ala His Lys Ile Arg
 145 150 155 160

Gly Asp Asn Ala Arg Leu Asn Phe Pro Asp Ile Val Arg Gln Gly His
 165 170 175

Tyr Lys Gln Ile Leu Ser Pro Ser Ile Asn Ala Lys Ile Glu Ser Ile
 180 185 190

Cys Asn Ser Ser Asp Leu Pro Leu Pro Gln Ile Glu Lys Gln Asn Lys
 195 200 205

Thr Glu Glu Val Leu Ser Gly Phe Ser Lys Pro Glu Lys Glu Pro Glu
 210 215 220

Phe Gly Glu Ile Tyr Gly Cys Gly Tyr Ser Gly Ser Ser Pro Glu Ser
 225 230 235 240

Asp Ile Thr Leu Leu Asp Phe Ser Ser Asp Cys Val Lys Glu Asp Glu
 245 250 255

Ser Phe Leu Met Gly Leu His Lys Tyr Pro Ser Leu Glu Ile Asp Trp
 260 265 270

Asp Ala Ile Glu Lys Leu Phe
 275

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 Met Arg Gly Val Ser 5
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 Glu Leu Glu Val Gly Lys Ser Asn Leu Pro Ala Glu Ser Glu Leu Glu 10
 15 20
 ttg gga tta ggg ctc agc ctc ggt ggt gcc gcg tgg aaa gag cgt ggg 151
 Leu Gly Leu Gly Leu Ser Leu Gly Gly Gly Ala Trp Lys Glu Arg Gly 25
 30 35
 agg att ctt act gct aag gat ttt cct tcc gtt ggg tct aaa cgc tct 199
 Arg Ile Leu Thr Ala Lys Asp Phe Pro Ser Val Gly Ser Lys Arg Ser 40
 45 50
 gct gaa tct tcc tct cac caa gga gct tct cct cct cgt tca agt caa 247
 Ala Glu Ser Ser Ser His Gln Gly Ala Ser Pro Arg Ser Ser Gln 55
 60 65
 gtg gta gga tgg cca cca att ggg tta cac agg atg aac agt ttg gtt 295
 Val Val Gly Trp Pro Pro Ile Gly Leu His Arg Met Asn Ser Leu Val 70
 75 80 85
 aat aac caa gct atg aag gca gca aga gcg gaa gaa gga gac ggg gag 343
 Asn Asn Gln Ala Met Lys Ala Ala Arg Ala Glu Glu Gly Asp Gly Glu 90
 95 100
 aag aaa gtt gtg aag aat gat gag ctc aaa gat gtg tca atg aag gtg 391
 Lys Lys Val Val Lys Asn Asp Glu Leu Lys Asp Val Ser Met Lys Val 105
 110 115
 aat ccg aaa gtt cag gcc tta ggg ttt gtt aag gtg aat atg gat gga 439
 Asn Pro Lys Val Gln Gly Leu Gly Phe Val Lys Val Asn Met Asp Gly 120
 125 130
 gtt ggt ata gcc aga aaa gtg gat atg aga gct cat tcg tct tac gaa 487
 Val Gly Ile Gly Arg Lys Val Asp Met Arg Ala His Ser Ser Tyr Glu 135
 140 145
 aac ttg gct cag acg ctt gag gaa atg ttc ttt gga atg aca ggt act 535
 Asn Leu Ala Gln Thr Leu Glu Glu Met Phe Phe Gly Met Thr Gly Thr 150
 155 160 165
 act tgt cga gaa aag gtt aaa cct tta agg ctt tta gat gga tca tca 583
 Thr Cys Arg Glu Lys Val Lys Pro Leu Arg Leu Leu Asp Gly Ser Ser 170
 175 180
 gac ttt gta ctc act tat gaa gat aag gaa ggg gat tgg atg ctt gtt 631
 Asp Phe Val Leu Thr Tyr Glu Asp Lys Glu Gly Asp Trp Met Leu Val 185
 190 195
 gga gat gtt cca tgg aga atg ttt atc aac tcg gtg aaa agg ctt cgg 679

Gly Asp Val Pro Trp Arg Met Phe Ile Asn Ser Val Lys Arg Leu Arg
 200 205 210
 atc atg gga acc tca gaa gct agt gga cta gct cca aga cgt caa gag 727
 Ile Met Gly Thr Ser Glu Ala Ser Gly Leu Ala Pro Arg Arg Gln Glu
 215 220 225
 cag aag gat aga caa aga aac aac cct gtt tag ctcccttcc aaagctggca 780
 Gln Lys Asp Arg Gln Arg Asn Asn Pro Val
 230 235
 ttgtttatgt attgtttgag gtttgcaatt tactcgatac tttttgaaga aagtattttg 840
 gagaatatgg ataaaagcat gcagaagcctt agatatgatt tgaatccggt ttctggatat 900
 ggttttgctt aggtcattca attcgtagtt ttocagtttg tttcttcttt ggctgtgtac 960
 caattatcta tgttctgtga gagaaaagctc tt 992

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 Glu Ser Glu Leu Glu Leu Gly Leu Gly Leu Ser Leu Gly Gly Gly Ala
 20 25 30
 Trp Lys Glu Arg Gly Arg Ile Leu Thr Ala Lys Asp Phe Pro Ser Val
 35 40 45
 Gly Ser Lys Arg Ser Ala Glu Ser Ser Ser His Gln Gly Ala Ser Pro
 50 55 60
 Pro Arg Ser Ser Gln Val Val Gly Trp Pro Pro Ile Gly Leu His Arg
 65 70 75 80
 Met Asn Ser Leu Val Asn Asn Gln Ala Met Lys Ala Ala Arg Ala Glu
 85 90 95
 Glu Gly Asp Gly Glu Lys Lys Val Val Lys Asn Asp Glu Leu Lys Asp
 100 105 110
 Val Ser Met Lys Val Asn Pro Lys Val Gln Gly Leu Gly Phe Val Lys
 115 120 125
 Val Asn Met Asp Gly Val Gly Ile Gly Arg Lys Val Asp Met Arg Ala
 130 135 140

His Ser Ser Tyr Glu Asn Leu Ala Gln Thr Leu Glu Glu Met Phe Phe
145 150 155 160

Gly Met Thr Gly Thr Thr Cys Arg Glu Lys Val Lys Pro Leu Arg Leu
165 170 175

Leu Asp Gly Ser Ser Asp Phe Val Leu Thr Tyr Glu Asp Lys Glu Gly
180 185 190

Asp Trp Met Leu Val Gly Asp Val Pro Trp Arg Met Phe Ile Asn Ser
195 200 205

Val Lys Arg Leu Arg Ile Met Gly Thr Ser Glu Ala Ser Gly Leu Ala
210 215 220

Pro Arg Arg Gln Glu Gln Lys Asp Arg Gln Arg Asn Asn Pro Val
225 230 235

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1 5 10 15

ctt tta cct tgt gat act ttt gct aag aat aga aga ttt gaa cag aga 96
Leu Leu Pro Cys Asp Thr Phe Ala Lys Asn Arg Arg Phe Glu Gln Arg
20 25 30

ctc tct aat aat gat gat gtg ttg att tct gac atg gct ggt aac tcc 144
Leu Ser Asn Asn Asp Asp Val Leu Ile Ser Asp Met Ala Gly Asn Ser
35 40 45

aat gga ttc agt gct gtt tct att act aaa gtt gtt cct gaa gag gaa 192
Asn Gly Phe Ser Ala Val Ser Ile Thr Lys Val Val Pro Glu Glu Glu
50 55 60

gat gag gag aac ata tct tct tct tca aag ttc tct agt cag gaa ttg 240
Asp Glu Glu Asn Ile Ser Ser Ser Ser Lys Phe Ser Ser Gln Glu Leu
65 70 75 80

aat agg ata gat ttc aaa ctt agg agc ttt ttg gat tta gga aat gat 288
Asn Arg Ile Asp Phe Lys Leu Arg Ser Phe Leu Asp Leu Gly Asn Asp
85 90 95

gat gat gat aca tcc tct aga ggt ttt gct ctg cca tct aaa aag tct 336
Asp Asp Asp Thr Ser Ser Arg Gly Phe Ala Leu Pro Ser Lys Lys Ser
100 105 110

cga gct tca aac ttg tgc tct cag aat ccc ttg tgt caa gtt tat ggg Arg Ala Ser Asn Leu Cys Ser Gln Asn Pro Leu Cys Gln Val Tyr Gly 115 120 125	384
tgt agt aag gat ctg agc tct tcg aaa gat tac cac aaa agg cat aga Cys Ser Lys Asp Leu Ser Ser Ser Lys Asp Tyr His Lys Arg His Arg 130 135 140	432
gtt tgc gag gct cat tcg aaa act tct gtg gtc ata gtt aat ggt ctt Val Cys Glu Ala His Ser Lys Thr Ser Val Val Ile Val Asn Gly Leu 145 150 155 160	480
gaa cag agg ttt tgt caa cag tgc agc agg ttt cat ttc ctc tca gag Glu Gln Arg Phe Cys Gln Gln Cys Ser Arg Phe His Phe Leu Ser Glu 165 170 175	528
ttt gat gat ggc aaa aga agt tgc aga agg cga tta gcc ggt cac aat Phe Asp Asp Gly Lys Arg Ser Cys Arg Arg Arg Leu Ala Gly His Asn 180 185 190	576
gaa cga aga agg aaa cct gca ttc tat ttc cta ccg ggt aag cgc cat Glu Arg Arg Arg Lys Pro Ala Phe Tyr Phe Leu Pro Gly Lys Arg His 195 200 205	624
aag ctt ctt cgc acc tct caa gat gta gta ggc aac aag ttt ctg gag Lys Leu Leu Arg Thr Ser Gln Asp Val Val Gly Asn Lys Phe Leu Glu 210 215 220	672
aat tca tca ttg gta ttg cca gag tca ttt cct ggt agt ctc tta tac Asn Ser Ser Leu Val Leu Pro Glu Ser Phe Pro Gly Ser Leu Leu Tyr 225 230 235 240	720
aga gta ata gat gaa gac gac cac cgt aca agt aga ctc gtg agt ttc Arg Val Ile Asp Glu Asp Asp His Arg Thr Ser Arg Leu Val Ser Phe 245 250 255	768
aaa gat gaa cct act tgt tcc atg ttt cct act aat gag caa aac agc Lys Asp Glu Pro Thr Cys Ser Met Phe Pro Thr Asn Glu Gln Asn Ser 260 265 270	816
agc aga act tat gaa tct aaa cca gca att tat tcc acg gaa gta tcc Ser Arg Thr Tyr Glu Ser Lys Pro Ala Ile Tyr Ser Thr Glu Val Ser 275 280 285	864
tcc att tgg gac tta cat gag acg gcg gca tca cgc tct act cgt gct Ser Ile Trp Asp Leu His Glu Thr Ala Ala Ser Arg Ser Thr Arg Ala 290 295 300	912
ctc tct ctt ctg tca gct cag tcc caa caa cac ttg tct aag ttt cca Leu Ser Leu Leu Ser Ala Gln Ser Gln Gln His Leu Ser Lys Phe Pro 305 310 315 320	960
aac aca acg ttc tca atc acc caa ccc aac caa aat ctc aat cac tca Asn Thr Thr Phe Ser Ile Thr Gln Pro Asn Gln Asn Leu Asn His Ser 325 330 335	1008
tca tca act gac tat cat cag atg gaa caa ccg ttg tgg atc gat cct	1056

Ser	Ser	Thr	Asp	Tyr	His	Gln	Met	Glu	Gln	Pro	Leu	Trp	Ile	Asp	Pro		
			340					345					350				
ggc	aag	acc	aat	tct	gct	ggg	tct	agt	tct	tgt	aaa	gga	aaa	gga	aca	1104	
Gly	Lys	Thr	Asn	Ser	Ala	Gly	Ser	Ser	Ser	Cys	Lys	Gly	Lys	Gly	Thr		
		355					360				365						
tcc	acg	gtt	gat	cta	ctg	caa	ctg	tca	tca	cat	ctt	caa	aga	atc	gag	1152	
Ser	Thr	Val	Asp	Leu	Leu	Gln	Leu	Ser	Ser	His	Leu	Gln	Arg	Ile	Glu		
		370				375					380						
caa	cag	agg	aat	tac	act	ggg	gat	gtg	aag	cag	gaa	tat	aat	gag	ctt	1200	
Gln	Gln	Arg	Asn	Tyr	Thr	Gly	Asp	Val	Lys	Gln	Glu	Tyr	Asn	Glu	Leu		
		385			390					395					400		
tat	ttc	cct	ggc	tcc	taa											1218	
Tyr	Phe	Pro	Gly	Ser													
				405													

<210> 96 <211> 405 <212> PRT <213> Arabidopsis thaliana <400> 96

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Leu	Leu	Pro	Cys	Asp	Thr	Phe	Ala	Lys	Asn	Arg	Arg	Phe	Glu	Gln	Arg		
			20					25					30				
Leu	Ser	Asn	Asn	Asp	Asp	Val	Leu	Ile	Ser	Asp	Met	Ala	Gly	Asn	Ser		
		35					40					45					
Asn	Gly	Phe	Ser	Ala	Val	Ser	Ile	Thr	Lys	Val	Val	Pro	Glu	Glu	Glu		
	50					55					60						
Asp	Glu	Glu	Asn	Ile	Ser	Ser	Ser	Ser	Lys	Phe	Ser	Ser	Gln	Glu	Leu		
65				70						75				80			
Asn	Arg	Ile	Asp	Phe	Lys	Leu	Arg	Ser	Phe	Leu	Asp	Leu	Gly	Asn	Asp		
		85						90						95			
Asp	Asp	Asp	Thr	Ser	Ser	Arg	Gly	Phe	Ala	Leu	Pro	Ser	Lys	Lys	Ser		
			100					105						110			
Arg	Ala	Ser	Asn	Leu	Cys	Ser	Gln	Asn	Pro	Leu	Cys	Gln	Val	Tyr	Gly		
		115					120						125				
Cys	Ser	Lys	Asp	Leu	Ser	Ser	Ser	Lys	Asp	Tyr	His	Lys	Arg	His	Arg		
		130				135					140						

Val Cys Glu Ala His Ser Lys Thr Ser Val Val Ile Val Asn Gly Leu
145 150 155 160

Glu Gln Arg Phe Cys Gln Gln Cys Ser Arg Phe His Phe Leu Ser Glu
165 170 175

Phe Asp Asp Gly Lys Arg Ser Cys Arg Arg Arg Leu Ala Gly His Asn
180 185 190

Glu Arg Arg Arg Lys Pro Ala Phe Tyr Phe Leu Pro Gly Lys Arg His
195 200 205

Lys Leu Leu Arg Thr Ser Gln Asp Val Val Gly Asn Lys Phe Leu Glu
210 215 220

Asn Ser Ser Leu Val Leu Pro Glu Ser Phe Pro Gly Ser Leu Leu Tyr
225 230 235 240

Arg Val Ile Asp Glu Asp Asp His Arg Thr Ser Arg Leu Val Ser Phe
245 250 255

Lys Asp Glu Pro Thr Cys Ser Met Phe Pro Thr Asn Glu Gln Asn Ser
260 265 270

Ser Arg Thr Tyr Glu Ser Lys Pro Ala Ile Tyr Ser Thr Glu Val Ser
275 280 285

Ser Ile Trp Asp Leu His Glu Thr Ala Ala Ser Arg Ser Thr Arg Ala
290 295 300

Leu Ser Leu Leu Ser Ala Gln Ser Gln Gln His Leu Ser Lys Phe Pro
305 310 315 320

Asn Thr Thr Phe Ser Ile Thr Gln Pro Asn Gln Asn Leu Asn His Ser
325 330 335

Ser Ser Thr Asp Tyr His Gln Met Glu Gln Pro Leu Trp Ile Asp Pro
340 345 350

Gly Lys Thr Asn Ser Ala Gly Ser Ser Ser Cys Lys Gly Lys Gly Thr
355 360 365

Ser Thr Val Asp Leu Leu Gln Leu Ser Ser His Leu Gln Arg Ile Glu
370 375 380

Gln Gln Arg Asn Tyr Thr Gly Asp Val Lys Gln Glu Tyr Asn Glu Leu
385 390 395 400

Tyr Phe Pro Gly Ser
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cgt tca cat aac acg atg cca atg ctt gat caa ttt cga tct aat cat 96
Arg Ser His Asn Thr Met Pro Met Leu Asp Gln Phe Arg Ser Asn His
20 25 30
cct gaa aca agc aag atc gag ggg gtc tct tcg ttg gac aca gct ctg 144
Pro Glu Thr Ser Lys Ile Glu Gly Val Ser Ser Leu Asp Thr Ala Leu
35 40 45
aag gtg ttt tgg aat aat caa agg gag cag cta gga aac ttt gca ggc 192
Lys Val Phe Trp Asn Asn Gln Arg Glu Gln Leu Gly Asn Phe Ala Gly
50 55 60
caa act cat ttg ccg cta tct agg gtc aga aag att ttg aaa tct gat 240
Gln Thr His Leu Pro Leu Ser Arg Val Arg Lys Ile Leu Lys Ser Asp
65 70 75 80
cct gaa gtc aag aag ata agc tgt gat gtt cct gct ttg ttt tcg aaa 288
Pro Glu Val Lys Lys Ile Ser Cys Asp Val Pro Ala Leu Phe Ser Lys
85 90 95
gcc tgt gaa tac ttc att cta gag gta aca tta cga gct tgg atg cat 336
Ala Cys Glu Tyr Phe Ile Leu Glu Val Thr Leu Arg Ala Trp Met His
100 105 110
act caa tca tgc act cgt gag acc atc cgg cgt tgt gat atc ttc cag 384
Thr Gln Ser Cys Thr Arg Glu Thr Ile Arg Arg Cys Asp Ile Phe Gln
115 120 125
gcc gta aag aac tca gga act tat gat ttc ctg att gat cgt gtc cct 432
Ala Val Lys Asn Ser Gly Thr Tyr Asp Phe Leu Ile Asp Arg Val Pro
130 135 140
ttt gga ccg cac tgt gtc acc cat cag ggt gtg caa cct cct gct gaa 480
Phe Gly Pro His Cys Val Thr His Gln Gly Val Gln Pro Pro Ala Glu
145 150 155 160
atg att ttg ccg gat atg aat gtt cca atc gat atg gac cag att gag 528

Met Ile Leu Pro Asp Met Asn Val Pro Ile Asp Met Asp Gln Ile Glu
165 170 175

gag gag aat atg atg gaa gag cgc tct gtc ggg ttt gac ctc aac tgt 576
Glu Glu Asn Met Met Glu Glu Arg Ser Val Gly Phe Asp Leu Asn Cys
180 185 190

gat ctc cag tga 588
Asp Leu Gln
195

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Met Arg Arg Pro Lys Ser Ser His Val Arg Met Glu Pro Val Ala Pro
1 5 10 15

Arg Ser His Asn Thr Met Pro Met Leu Asp Gln Phe Arg Ser Asn His
20 25 30

Pro Glu Thr Ser Lys Ile Glu Gly Val Ser Ser Leu Asp Thr Ala Leu
35 40 45

Lys Val Phe Trp Asn Asn Gln Arg Glu Gln Leu Gly Asn Phe Ala Gly
50 55 60

Gln Thr His Leu Pro Leu Ser Arg Val Arg Lys Ile Leu Lys Ser Asp
65 70 75 80

Pro Glu Val Lys Lys Ile Ser Cys Asp Val Pro Ala Leu Phe Ser Lys
85 90 95

Ala Cys Glu Tyr Phe Ile Leu Glu Val Thr Leu Arg Ala Trp Met His
100 105 110

Thr Gln Ser Cys Thr Arg Glu Thr Ile Arg Arg Cys Asp Ile Phe Gln
115 120 125

Ala Val Lys Asn Ser Gly Thr Tyr Asp Phe Leu Ile Asp Arg Val Pro
130 135 140

Phe Gly Pro His Cys Val Thr His Gln Gly Val Gln Pro Pro Ala Glu
145 150 155 160

Met Ile Leu Pro Asp Met Asn Val Pro Ile Asp Met Asp Gln Ile Glu
165 170 175

Glu Glu Asn Met Met Glu Glu Arg Ser Val Gly Phe Asp Leu Asn Cys
 180 185 190

Asp Leu Gln
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 Ala Leu Glu Ala Leu Thr Ser Pro Arg Leu Ala Ser Pro Ile Pro Pro
 5 10 15
 ttg ttc gaa gat tct tca gtc ttc cat gga gtc gag cac tgg aca aag 153
 Leu Phe Glu Asp Ser Ser Val Phe His Gly Val Glu His Trp Thr Lys
 20 25 30
 ggt aag cga tct aag aga tca aga tcc gat ttc cac cac caa aac ctc 201
 Gly Lys Arg Ser Lys Arg Ser Arg Ser Asp Phe His His Gln Asn Leu
 35 40 45
 act gag gaa gag tat cta gct ttt tgc ctc atg ctt ctc gct cgc gac 249
 Thr Glu Glu Glu Tyr Leu Ala Phe Cys Leu Met Leu Leu Ala Arg Asp
 50 55 60 65
 aac cgt cag cct cct cct cct ccg gcg gtg gag aag ttg agc tac aag 297
 Asn Arg Gln Pro Pro Pro Pro Ala Val Glu Lys Leu Ser Tyr Lys
 70 75 80
 tgt agc gtc tgc gac aag acg ttc tct tct tac caa gct ctc ggt ggt 345
 Cys Ser Val Cys Asp Lys Thr Phe Ser Ser Tyr Gln Ala Leu Gly Gly
 85 90 95
 cac aag gca agc cac cgt aag aac tta tca cag act ctc tcc gcc gga 393
 His Lys Ala Ser His Arg Lys Asn Leu Ser Gln Thr Leu Ser Gly Gly
 100 105 110
 gga gat gat cat tca acc tgg tgg gcg aca acc aca tcc gcc gtg act 441
 Gly Asp Asp His Ser Thr Ser Ser Ala Thr Thr Thr Ser Ala Val Thr
 115 120 125
 act gga agt ggg aaa tca cac gtt tgc acc atc tgt aac aag tct ttt 489
 Thr Gly Ser Gly Lys Ser His Val Cys Thr Ile Cys Asn Lys Ser Phe
 130 135 140 145
 cct tcc ggt caa gct ctc gcc gga cac aag ccg tgc cac tac gaa gga 537
 Pro Ser Gly Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Glu Gly
 150 155 160

aac aac aac atc aac act agt agc gtg tcc aac tcc gaa ggt gcg ggg 585
 Asn Asn Asn Ile Asn Thr Ser Ser Val Ser Asn Ser Glu Gly Ala Gly
 165 170 175

tcc act agc cac gtt agc agt agc cac cgt ggg ttt gac ctc aac atc 633
 Ser Thr Ser His Val Ser Ser Ser His Arg Gly Phe Asp Leu Asn Ile
 180 185 190

cct ccg atc cct gaa ttc tcg atg gtc aac gga gac gac gaa gtc atg 681
 Pro Pro Ile Pro Glu Phe Ser Met Val Asn Gly Asp Asp Glu Val Met
 195 200 205

agc cct atg ccg gcg aag aag cct ccg ttt gac ttt ccg gtc aaa ctt 729
 Ser Pro Met Pro Ala Lys Lys Pro Arg Phe Asp Phe Pro Val Lys Leu
 210 215 220 225

caa ctt taa ggaaatttac ttagacgata agatttcgtt tgtatactgt 778
 Gln Leu

tgagagtgt gttagaattt gttgactgta cataccaaat tggactttga ctgattccaa 838

tcttctctgt tctttcattt taaaaattat taaaccgatt cttaccaca aa 890

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Pro Leu Phe Glu Asp Ser Ser Val Phe His Gly Val Glu His Trp Thr
 20 25 30

Lys Gly Lys Arg Ser Lys Arg Ser Arg Ser Asp Phe His His Gln Asn
 35 40 45

Leu Thr Glu Glu Glu Tyr Leu Ala Phe Cys Leu Met Leu Leu Ala Arg
 50 55 60

Asp Asn Arg Gln Pro Pro Pro Pro Ala Val Glu Lys Leu Ser Tyr
 65 70 75 80

Lys Cys Ser Val Cys Asp Lys Thr Phe Ser Ser Tyr Gln Ala Leu Gly
 85 90 95

Gly His Lys Ala Ser His Arg Lys Asn Leu Ser Gln Thr Leu Ser Gly
 100 105 110

Gly Gly Asp Asp His Ser Thr Ser Ser Ala Thr Thr Thr Ser Ala Val
 115 120 125

Thr Thr Gly Ser Gly Lys Ser His Val Cys Thr Ile Cys Asn Lys Ser
130 135 140

Phe Pro Ser Gly Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Glu
145 150 155 160

Gly Asn Asn Asn Ile Asn Thr Ser Ser Val Ser Asn Ser Glu Gly Ala
165 170 175

Gly Ser Thr Ser His Val Ser Ser Ser His Arg Gly Phe Asp Leu Asn
180 185 190

Ile Pro Pro Ile Pro Glu Phe Ser Met Val Asn Gly Asp Asp Glu Val
195 200 205

Met Ser Pro Met Pro Ala Lys Lys Pro Arg Phe Asp Phe Pro Val Lys
210 215 220

Leu Gln Leu
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<222> (192)..(698) <223> G557

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cagcttcgct actaagacaa caaatctttc cctctctctc tcgctgctgc gatcttcaaa 180
gagtaagaaa a atg cag gaa caa gcg act agc tct tta gct gca agc tct 230
Met Gln Glu Gln Ala Thr Ser Ser Leu Ala Ala Ser Ser
1 5 10
tta cca tca agc agc gag agg tca tca agc tct gct cca cat ttg gag 278
Leu Pro Ser Ser Ser Glu Arg Ser Ser Ser Ser Ala Pro His Leu Glu
15 20 25
atc aaa gaa gga att gaa agc gat gag gag ata cgg cga gtg ccg gag 326
Ile Lys Glu Gly Ile Glu Ser Asp Glu Glu Ile Arg Arg Val Pro Glu
30 35 40 45
ttt gga gga gaa gct gtc gga aaa gaa act tcc ggt aga gaa tct gga 374
Phe Gly Gly Glu Ala Val Gly Lys Glu Thr Ser Gly Arg Glu Ser Gly
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tcg gcg acc ggt cag gag cgg aca cag gcg act gtc gga gaa agt caa 422

Ser Ala Thr Gly Gln Glu Arg Thr Gln Ala Thr Val Gly Glu Ser Gln
65 70 75

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Arg Lys Arg Gly Arg Thr Pro Ala Glu Lys Glu Asn Lys Arg Leu Lys
80 85 90

agg ttg ttg agg aac aga gtt tca gct cag caa gca aga gag agg aaa 518
Arg Leu Leu Arg Asn Arg Val Ser Ala Gln Gln Ala Arg Glu Arg Lys
95 100 105

aag gct tac ttg agc gag ttg gaa aac aga gtg aaa gac ttg gag aac 566
Lys Ala Tyr Leu Ser Glu Leu Glu Asn Arg Val Lys Asp Leu Glu Asn
110 115 120 125

aaa aac tct gaa ctt gaa gag cga ctc tct act ctt cag aac gag aac 614
Lys Asn Ser Glu Leu Glu Glu Arg Leu Ser Thr Leu Gln Asn Glu Asn
130 135 140

cag atg ctt aga cat att ctg aag aac aca aca gga aac aag aga gga 662
Gln Met Leu Arg His Ile Leu Lys Asn Thr Thr Gly Asn Lys Arg Gly
145 150 155

ggg ggt ggt ggt tct aat gct gat gca agc ctt tga tctcttctt 708
Gly Gly Gly Gly Ser Asn Ala Asp Ala Ser Leu
160 165

cttctgtgt tatatttttg tggataaaat ttacagagaa ttgtatcaat aattatcatg 768

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Met Gln Glu Gln Ala Thr Ser Ser Leu Ala Ala Ser Ser Leu Pro Ser
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Ser Ser Glu Arg Ser Ser Ser Ser Ala Pro His Leu Glu Ile Lys Glu
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Gly Ile Glu Ser Asp Glu Glu Ile Arg Arg Val Pro Glu Phe Gly Gly
35 40 45

Glu Ala Val Gly Lys Glu Thr Ser Gly Arg Glu Ser Gly Ser Ala Thr
50 55 60

Gly Gln Glu Arg Thr Gln Ala Thr Val Gly Glu Ser Gln Arg Lys Arg
65 70 75 80

Gly Arg Thr Pro Ala Glu Lys Glu Asn Lys Arg Leu Lys Arg Leu Leu

Arg Asn Arg Val Ser Ala Gln Gln Ala Arg Glu Arg Lys Lys Ala Tyr
100 105 110

Leu Ser Glu Leu Glu Asn Arg Val Lys Asp Leu Glu Asn Lys Asn Ser
115 120 125

Glu Leu Glu Glu Arg Leu Ser Thr Leu Gln Asn Glu Asn Gln Met Leu
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Arg His Ile Leu Lys Asn Thr Thr Gly Asn Lys Arg Gly Gly Gly Gly
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Gly Ser Asn Ala Asp Ala Ser Leu
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cacttctggt ctcttttcca atg ttg tca tca gct aag cat cag aga aac cat 173
Met Leu Ser Ser Ala Lys His Gln Arg Asn His
1 5 10

aga ctc tct gct aca aac aag aac cag act ctc acc aaa gtt tct tcc 221

Arg Leu Ser Ala Thr Asn Lys Asn Gln Thr Leu Thr Lys Val Ser Ser
15 20 25

att tca tcc tca tca cca tgg tct tct tct tca tca tca tca acc tca 269

Ile Ser Ser Ser Ser Pro Ser Ser Ser Ser Ser Ser Ser Thr Ser
30 35 40

tca tca tct cct tta cct tct caa gac tct caa gcc cag aag aga tct 317

Ser Ser Ser Pro Leu Pro Ser Gln Asp Ser Gln Ala Gln Lys Arg Ser
45 50 55

ctt gtc acc atg gaa gaa gtt tgg aat gac atc aac ctt gct tcc atc 365

Leu Val Thr Met Glu Glu Val Trp Asn Asp Ile Asn Leu Ala Ser Ile
60 65 70 75

cac cac cta aac cga cac agc cct cat cca caa cac aac cac gag cca 413

His His Leu Asn Arg His Ser Pro His Pro Gln His Asn His Glu Pro
80 85 90

agg ttc agg ggc caa aac cac cac aac caa aac cct aac tca atc ttc 461

Arg Phe Arg Gly Gln Asn His His Asn Gln Asn Pro Asn Ser Ile Phe

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	Gln Thr Thr Gly Ser Ala Pro Asn Gly Asp Ser Thr Thr Val Thr Val			
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	Leu Tyr Ser Ser Pro Phe Pro Pro Pro Ala Thr Val Leu Ser Leu Asn			
	140 145 150 155			
	tcc ggc gct ggc ttc gag ttt ctc gat aac caa gat cct ctt gtt acc	653		
	Ser Gly Ala Gly Phe Glu Phe Leu Asp Asn Gln Asp Pro Leu Val Thr			
	160 165 170			
	tca aac tct aat ctt cat acc cac cat cac ctc tca aac gct cat gcc	701		
	Ser Asn Ser Asn Leu His Thr His His His Leu Ser Asn Ala His Ala			
	175 180 185			
	ttc aac acc tct ttc gag gct ctg gtt cca tcc agt tct ttt ggt aag	749		
	Phe Asn Thr Ser Phe Glu Ala Leu Val Pro Ser Ser Ser Phe Gly Lys			
	190 195 200			
	aaa aga ggc caa gat tcc aat gaa ggt tca ggg aat aga aga cat aag	797		
	Lys Arg Gly Gln Asp Ser Asn Glu Gly Ser Gly Asn Arg Arg His Lys			
	205 210 215			
	cgt atg atc aag aac aga gaa tct gca gct cgt tcc cgc gct agg aaa	845		
	Arg Met Ile Lys Asn Arg Glu Ser Ala Ala Arg Ser Arg Ala Arg Lys			
	220 225 230 235			
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	Gln Ala Tyr Thr Asn Glu Leu Glu Leu Glu Val Ala His Leu Gln Ala			
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	gaa aat gca aga ctc aag aga caa caa gat caa aaa atg gct gca gca	941		
	Glu Asn Ala Arg Leu Lys Arg Gln Gln Asp Gln Lys Met Ala Ala Ala			
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	Ile Gln Gln Pro Lys Lys Asn Thr Leu Gln Arg Ser Ser Thr Ala Pro			
	270 275 280			
	ttt tga gaaatctaca agtccttggt tctcttttgg ggattgagat tgtctcatga	1045		
	Phe			
	agaagtgtgaaa aaatggcaaa agtttgtacc cttttttatt agctataagt ataactaagg	1105		
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	gaaagagaaaa aggatctttc aatttcctaa ggcacaggaa cacctgtcct gggtcctctc	1225		
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1294

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Met Leu Ser Ser Ala Lys His Gln Arg Asn His Arg Leu Ser Ala Thr
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Asn Lys Asn Gln Thr Leu Thr Lys Val Ser Ser Ile Ser Ser Ser Ser
20 25 30

Pro Ser Ser Ser Ser Ser Ser Ser Ser Thr Ser Ser Ser Ser Pro Leu
35 40 45

Pro Ser Gln Asp Ser Gln Ala Gln Lys Arg Ser Leu Val Thr Met Glu
50 55 60

Glu Val Trp Asn Asp Ile Asn Leu Ala Ser Ile His His Leu Asn Arg
65 70 75 80

His Ser Pro His Pro Gln His Asn His Glu Pro Arg Phe Arg Gly Gln
85 90 95

Asn His His Asn Gln Asn Pro Asn Ser Ile Phe Gln Asp Phe Leu Lys
100 105 110

Gly Ser Leu Asn Gln Glu Pro Ala Pro Thr Ser Gln Thr Thr Gly Ser
115 120 125

Ala Pro Asn Gly Asp Ser Thr Thr Val Thr Val Leu Tyr Ser Ser Pro
130 135 140

Phe Pro Pro Pro Ala Thr Val Leu Ser Leu Asn Ser Gly Ala Gly Phe
145 150 155 160

Glu Phe Leu Asp Asn Gln Asp Pro Leu Val Thr Ser Asn Ser Asn Leu
165 170 175

His Thr His His His Leu Ser Asn Ala His Ala Phe Asn Thr Ser Phe
180 185 190

Glu Ala Leu Val Pro Ser Ser Ser Phe Gly Lys Lys Arg Gly Gln Asp
195 200 205

Ser Asn Glu Gly Ser Gly Asn Arg Arg His Lys Arg Met Ile Lys Asn
210 215 220

Arg Glu Ser Ala Ala Arg Ser Arg Ala Arg Lys Gln Ala Tyr Thr Asn
225 230 235 240

Glu Leu Glu Leu Glu Val Ala His Leu Gln Ala Glu Asn Ala Arg Leu
245 250 255

Lys Arg Gln Gln Asp Gln Lys Met Ala Ala Ala Ile Gln Gln Pro Lys
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Met Leu Ser Ser
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gca aag cat aat aag atc aac aac cat agt gcc ttt tca att tcc tct 102
Ala Lys His Asn Lys Ile Asn Asn His Ser Ala Phe Ser Ile Ser Ser
5 10 15 20

tca tca tca tca tta tca aca tca tcc tcc cta gcc cat aac aaa tct 150
Ser Ser Ser Ser Leu Ser Thr Ser Ser Ser Leu Gly His Asn Lys Ser
25 30 35

caa gtc acc atg gaa gaa gta tgg aaa gaa atc aac ctt ggt tca ctt 198
Gln Val Thr Met Glu Glu Val Trp Lys Glu Ile Asn Leu Gly Ser Leu
40 45 50

cac tac cat cgg caa cta aac att ggt cat gaa cca atg tta aag aac 246
His Tyr His Arg Gln Leu Asn Ile Gly His Glu Pro Met Leu Lys Asn
55 60 65

caa aac cct aat aac tcc atc ttt caa gat ttc ctc aac atg cct ctg 294
Gln Asn Pro Asn Asn Ser Ile Phe Gln Asp Phe Leu Asn Met Pro Leu
70 75 80

aat caa cca cca cca cca cca cca cca cct tcc tct tcc acc att gtc 342
Asn Gln Pro Pro Pro Pro Pro Pro Pro Ser Ser Ser Thr Ile Val
85 90 95 100

act gct ctc tat ggc tct ctg cct ctt ccg cct cct gcc act gtc ctc 390
Thr Ala Leu Tyr Gly Ser Leu Pro Leu Pro Pro Ala Thr Val Leu
105 110 115

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ctt ctt gct tct aac cct cgc tcc ttt gag gaa tct gca aag ttt ggt      486
Leu Leu Ala Ser Asn Pro Arg Ser Phe Glu Glu Ser Ala Lys Phe Gly
      135                      140                      145

tgt ctt ggt aag aaa aga ggc caa gat tct gat gat act aga gga gac      534
Cys Leu Gly Lys Lys Arg Gly Gln Asp Ser Asp Asp Thr Arg Gly Asp
      150                      155                      160

aga agg tat aag cgt atg atc aag aac aga gaa tct gct gct cgt toa      582
Arg Arg Tyr Lys Arg Met Ile Lys Asn Arg Glu Ser Ala Ala Arg Ser
      165                      170                      175

agg gct agg aag cag gca tat aca aac gaa ctt gag ctt gaa att gct      630
Arg Ala Arg Lys Gln Ala Tyr Thr Asn Glu Leu Glu Leu Glu Ile Ala
      185                      190                      195

cac ttg cag aca gag aat gca aga ctc aag ata caa caa gag cag ctg      678
His Leu Gln Thr Glu Asn Ala Arg Leu Lys Ile Gln Gln Glu Gln Leu
      200                      205                      210

aaa ata gcc gaa gca act caa aac caa gta aag aaa aca cta caa cgg      726
Lys Ile Ala Glu Ala Thr Gln Asn Gln Val Lys Lys Thr Leu Gln Arg
      215                      220                      225

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Ser Ser Thr Ala Pro Phe
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35 40 45

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Leu Gly Ser Leu His Tyr His Arg Gln Leu Asn Ile Gly His Glu Pro
50 55 60

Met Leu Lys Asn Gln Asn Pro Asn Asn Ser Ile Phe Gln Asp Phe Leu
65 70 75 80

Asn Met Pro Leu Asn Gln Pro Pro Pro Pro Pro Pro Pro Ser Ser
85 90 95

Ser Thr Ile Val Thr Ala Leu Tyr Gly Ser Leu Pro Leu Pro Pro Pro
100 105 110

Ala Thr Val Leu Ser Leu Asn Ser Gly Val Gly Phe Glu Phe Leu Asp
115 120 125

Thr Thr Glu Asn Leu Leu Ala Ser Asn Pro Arg Ser Phe Glu Glu Ser
130 135 140

Ala Lys Phe Gly Cys Leu Gly Lys Lys Arg Gly Gln Asp Ser Asp Asp
145 150 155 160

Thr Arg Gly Asp Arg Arg Tyr Lys Arg Met Ile Lys Asn Arg Glu Ser
165 170 175

Ala Ala Arg Ser Arg Ala Arg Lys Gln Ala Tyr Thr Asn Glu Leu Glu
180 185 190

Leu Glu Ile Ala His Leu Gln Thr Glu Asn Ala Arg Leu Lys Ile Gln
195 200 205

Gln Glu Gln Leu Lys Ile Ala Glu Ala Thr Gln Asn Gln Val Lys Lys
210 215 220

Thr Leu Gln Arg Ser Ser Thr Ala Pro Phe
225 230

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Met Ile Ser Gln Arg
1 5

gaa gaa aga gaa gag aag aag cag aga gtg atg gga gat aag aaa ttg	164
Glu Glu Arg Glu Glu Lys Lys Gln Arg Val Met Gly Asp Lys Lys Leu	
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att tca tct tct tct tct tcc tcg gtt tac gat act cgt atc aat cat	212
Ile Ser Ser Ser Ser Ser Ser Ser Val Tyr Asp Thr Arg Ile Asn His	
25 30 35	
cat ctt cat cat oct ccg tct tct tcc gac gaa atc tct cag ttt ctc	260
His Leu His His Pro Pro Ser Ser Ser Asp Glu Ile Ser Gln Phe Leu	
40 45 50	
cgg cat att ttc gac cgt tct tct oct tta cct tct tac tac tcc cgg	308
Arg His Ile Phe Asp Arg Ser Ser Pro Leu Pro Ser Tyr Tyr Ser Pro	
55 60 65	
gcg acg act aca acg acg gcg tct ttg att ggt gtg cac ggg agc ggt	356
Ala Thr Thr Thr Thr Thr Ala Ser Leu Ile Gly Val His Gly Ser Gly	
70 75 80 85	
gac cca cat gca gat aac tcg aga agt ctc gtt tct cat cat cca cgg	404
Asp Pro His Ala Asp Asn Ser Arg Ser Leu Val Ser His His Pro Pro	
90 95 100	
tca gat tct gtg ctt atg tcg aaa cgt gtc gga gat ttc tct gag gtt	452
Ser Asp Ser Val Leu Met Ser Lys Arg Val Gly Asp Phe Ser Glu Val	
105 110 115	
tta atc ggc gga gga tca ggc tca gcc gcc gcg tgt ttt ggt ttc tcc	500
Leu Ile Gly Gly Ser Gly Ser Ala Ala Ala Cys Phe Gly Phe Ser	
120 125 130	
ggg ggt ggt aat aat aac aac gtt caa gga aat agc tct ggg act cga	548
Gly Gly Gly Asn Asn Asn Asn Val Gln Gly Asn Ser Ser Gly Thr Arg	
135 140 145	
gta tcg tct tct tcc gtt gga gct agt gcc aac gag aca gat gag tat	596
Val Ser Ser Ser Ser Val Gly Ala Ser Gly Asn Glu Thr Asp Glu Tyr	
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gac tgt gaa agc gag gaa gga gga gaa gct gta gtt gat gaa gct ccc	644
Asp Cys Glu Ser Glu Glu Gly Gly Glu Ala Val Val Asp Glu Ala Pro	
170 175 180	
tct tcc aag tca ggt oct tct tct cgt agt tca tct aaa aga tgc aga	692
Ser Ser Lys Ser Gly Pro Ser Ser Arg Ser Ser Ser Lys Arg Cys Arg	
185 190 195	
gct gct gaa gtt cat aat ctc tct gag aag agg agg aga agt aga att	740
Ala Ala Glu Val His Asn Leu Ser Glu Lys Arg Arg Arg Ser Arg Ile	
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aat gaa aaa atg aaa gct tta caa agt ctc atc cct aat tca aat aag	788
Asn Glu Lys Met Lys Ala Leu Gln Ser Leu Ile Pro Asn Ser Asn Lys	
215 220 225	

acg gat aag gct tca atg ctt gat gaa gcc att gag tat ctg aaa cag 836
Thr Asp Lys Ala Ser Met Leu Asp Glu Ala Ile Glu Tyr Leu Lys Gln
230 235 240 245

ctt cag ctc caa gtt cag atg ttg act atg aga aat gga ata aac ttg 884
Leu Gln Leu Gln Val Gln Met Leu Thr Met Arg Asn Gly Ile Asn Leu
250 255 260

cat cct ttg tgt tta cct gga act aca tta cac cca ttg caa ctc tct 932
His Pro Leu Cys Leu Pro Gly Thr Leu His Pro Leu Gln Leu Ser
265 270 275

cag att cga ccc cct gaa gca acc aat gat cct ctg ctt aat cat acc 980
Gln Ile Arg Pro Pro Glu Ala Thr Asn Asp Pro Leu Leu Asn His Thr
280 285 290

aat cag ttt gct tcg act tct aat gca ccg gaa atg atc aat act gtg 1028
Asn Gln Phe Ala Ser Thr Ser Asn Ala Pro Glu Met Ile Asn Thr Val
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gct tct tca tac gct ttg gaa cct tct att cgc agt cac ttt gga cct 1076
Ala Ser Ser Tyr Ala Leu Glu Pro Ser Ile Arg Ser His Phe Gly Pro
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ttc cct ctc ctt act tca ccc gtg gag atg agt cgg gaa ggt ggg tta 1124
Phe Pro Leu Leu Thr Ser Pro Val Glu Met Ser Arg Glu Gly Gly Leu
330 335 340

act cat cca agg ttg aac att ggt cat tcc aac gca aac ata acc ggg 1172
Thr His Pro Arg Leu Asn Ile Gly His Ser Asn Ala Asn Ile Thr Gly
345 350 355

gaa caa gct ctg ttt gat gga caa cct gac cta aaa gat cga att act 1220
Glu Gln Ala Leu Phe Asp Gly Gln Pro Asp Leu Lys Asp Arg Ile Thr
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Thr Arg Ile Asn His His Leu His His Pro Pro Ser Ser Ser Asp Glu
35 40 45

Ile Ser Gln Phe Leu Arg His Ile Phe Asp Arg Ser Ser Pro Leu Pro
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Ser Tyr Tyr Ser Pro Ala Thr Thr Thr Thr Thr Ala Ser Leu Ile Gly
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Val His Gly Ser Gly Asp Pro His Ala Asp Asn Ser Arg Ser Leu Val
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Ser His His Pro Pro Ser Asp Ser Val Leu Met Ser Lys Arg Val Gly
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Asp Phe Ser Glu Val Leu Ile Gly Gly Gly Ser Gly Ser Ala Ala Ala
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Cys Phe Gly Phe Ser Gly Gly Gly Asn Asn Asn Asn Val Gln Gly Asn
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Ser Ser Gly Thr Arg Val Ser Ser Ser Ser Val Gly Ala Ser Gly Asn
145 150 155 160

Glu Thr Asp Glu Tyr Asp Cys Glu Ser Glu Glu Gly Gly Glu Ala Val
165 170 175

Val Asp Glu Ala Pro Ser Ser Lys Ser Gly Pro Ser Ser Arg Ser Ser
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Ser Lys Arg Cys Arg Ala Ala Glu Val His Asn Leu Ser Glu Lys Arg
195 200 205

Arg Arg Ser Arg Ile Asn Glu Lys Met Lys Ala Leu Gln Ser Leu Ile
210 215 220

Pro Asn Ser Asn Lys Thr Asp Lys Ala Ser Met Leu Asp Glu Ala Ile
225 230 235 240

Glu Tyr Leu Lys Gln Leu Gln Leu Gln Val Gln Met Leu Thr Met Arg
245 250 255

Asn Gly Ile Asn Leu His Pro Leu Cys Leu Pro Gly Thr Thr Leu His
260 265 270

Pro Leu Gln Leu Ser Gln Ile Arg Pro Pro Glu Ala Thr Asn Asp Pro
275 280 285

Leu Leu Asn His Thr Asn Gln Phe Ala Ser Thr Ser Asn Ala Pro Glu
290 295 300

Met Ile Asn Thr Val Ala Ser Ser Tyr Ala Leu Glu Pro Ser Ile Arg
305 310 315 320

Ser His Phe Gly Pro Phe Pro Leu Leu Thr Ser Pro Val Glu Met Ser
325 330 335

Arg Glu Gly Gly Leu Thr His Pro Arg Leu Asn Ile Gly His Ser Asn
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Lys Asp Arg Ile Thr
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Val Leu Asp Arg Leu Lys Trp Leu Gln Gln Gln Met Val Ser Pro
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Glu Phe Leu Gln Ile Leu Gly Ser Asp Gly Arg Glu Glu Leu Lys Arg
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gtt gag agt tac ttg gga aac aac aat gat gag ctg cag agt ttc aga 201
Val Glu Ser Tyr Leu Gly Asn Asn Asn Asp Glu Leu Gln Ser Phe Arg
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cat ttt ccc gaa ttc gga cgg gat tat gat act act gat ggc tgc att 249
His Phe Pro Glu Phe Gly Pro Asp Tyr Asp Thr Thr Asp Gly Cys Ile
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Ser Arg Thr Ser Ser Phe His Met Glu Pro Val Lys Asn Asn Gly His
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Ser Arg Ala Ile Thr Leu Gln Asn Lys Arg Lys Pro Glu Gly Lys Thr
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gaa aag aga gag aag aag aag atc aaa gca gag gat gaa aca gag cca Glu Lys Arg Glu Lys Lys Lys Ile Lys Ala Glu Asp Glu Thr Glu Pro	393
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135 140 145	
acc gac aga cat agc tta gca gag agg gca aga aga gaa aag ata agc Thr Asp Arg His Ser Leu Ala Glu Arg Ala Arg Arg Glu Lys Ile Ser	537
150 155 160	
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165 170 175 180	
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185 190 195	
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200 205 210	
cca gaa ctt gag tgt cat atc gat gat tta tcc goa aaa cag ttt cag Pro Glu Leu Glu Cys His Ile Asp Asp Leu Ser Ala Lys Gln Phe Gln	729
215 220 225	
gct tac ttc aca ggt cct cca gaa ggt gac tcg aag cag tca atc atg Ala Tyr Phe Thr Gly Pro Pro Glu Gly Asp Ser Lys Gln Ser Ile Met	777
230 235 240	
gcg gat ttt cgg tct ttt cca tta cat cag caa gga tct tta gat tac Ala Asp Phe Arg Ser Phe Pro Leu His Gln Gln Gly Ser Leu Asp Tyr	825
245 250 255 260	
tca gtc ata aac tca gac cac acc aca tct ctc ggc gct aaa gat cat Ser Val Ile Asn Ser Asp His Thr Thr Ser Leu Gly Ala Lys Asp His	873
265 270 275	
aca tca tca agc tgg gaa act cac tca cag tgt ctt tac aac agc ttg Thr Ser Ser Ser Trp Glu Thr His Ser Gln Cys Leu Tyr Asn Ser Leu	921
280 285 290	
aga acc gat tct gtt tcc aat ttc ttc agc ctc aag taa aaaaattagg Arg Thr Asp Ser Val Ser Asn Phe Phe Ser Leu Lys	970
295 300	
gatagcctca ttaaaaaaat cgcggttttt tgttggtgtc ttatccattt atctatctta	1030
tctgaaattt gaaccagaaa gacagaggaa accaatccaa agatctttct caatctatta	1090
tcttcataca aatatagtga ttacatata ttccagggga tatgtatatg tgtagaagaa	1150

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Met Val Ser Pro Glu Phe Leu Gln Ile Leu Gly Ser Asp Gly Arg Glu
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Glu Leu Lys Arg Val Glu Ser Tyr Leu Gly Asn Asn Asn Asp Glu Leu
 35 40 45

Gln Ser Phe Arg His Phe Pro Glu Phe Gly Pro Asp Tyr Asp Thr Thr
 50 55 60

Asp Gly Cys Ile Ser Arg Thr Ser Ser Phe His Met Glu Pro Val Lys
 65 70 75 80

Asn Asn Gly His Ser Arg Ala Ile Thr Leu Gln Asn Lys Arg Lys Pro
 85 90 95

Glu Gly Lys Thr Glu Lys Arg Glu Lys Lys Lys Ile Lys Ala Glu Asp
 100 105 110

Glu Thr Glu Pro Ser Met Lys Gly Lys Ser Asn Met Ser Asn Thr Glu
 115 120 125

Thr Ser Ser Glu Ile Gln Lys Pro Asp Tyr Ile His Val Arg Ala Arg
 130 135 140

Arg Gly Glu Ala Thr Asp Arg His Ser Leu Ala Glu Arg Ala Arg Arg
 145 150 155 160

Glu Lys Ile Ser Lys Lys Met Lys Cys Leu Gln Asp Ile Val Pro Gly
 165 170 175

Cys Asn Lys Val Thr Gly Lys Ala Gly Met Leu Asp Glu Ile Ile Asn
 180 185 190

Tyr Val Gln Ser Leu Gln Gln Gln Val Glu Phe Leu Ser Met Lys Leu
195 200 205

Ser Val Ile Asn Pro Glu Leu Glu Cys His Ile Asp Asp Leu Ser Ala
210 215 220

Lys Gln Phe Gln Ala Tyr Phe Thr Gly Pro Pro Glu Gly Asp Ser Lys
225 230 235 240

Gln Ser Ile Met Ala Asp Phe Arg Ser Phe Pro Leu His Gln Gln Gly
245 250 255

Ser Leu Asp Tyr Ser Val Ile Asn Ser Asp His Thr Thr Ser Leu Gly
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Ala Lys Asp His Thr Ser Ser Ser Trp Glu Thr His Ser Gln Cys Leu
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Tyr Asn Ser Leu Arg Thr Asp Ser Val Ser Asn Phe Phe Ser Leu Lys
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ctctctctct tcactctctc ttcttttcaa a atg gaa aaa ctg atg gtt ccg 172
Met Glu Lys Leu Met Val Pro
1 5

aca tgg aga ccc gac ccg gtt tac cgt cca ccg gaa aca cca ctg gaa 220
Thr Trp Arg Pro Asp Pro Val Tyr Arg Pro Pro Glu Thr Pro Leu Glu
10 15 20

ccg atg gag ttt tta gct cgt tca tgg agc gtc tct gct ctg gaa gtc 268
Pro Met Glu Phe Leu Ala Arg Ser Trp Ser Val Ser Ala Leu Glu Val
25 30 35

tcc aag gct cta aca cca ccc aac cct cag att ctg ctg tcc aaa acc 316
Ser Lys Ala Leu Thr Pro Asn Pro Gln Ile Leu Leu Ser Lys Thr
40 45 50 55

gaa gaa gaa gaa gaa gaa gaa ccc atc tcc tct gtc gta gac ggc gac 364
Glu Glu Glu Glu Glu Glu Glu Pro Ile Ser Ser Val Val Asp Gly Asp
60 65 70

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Ala Cys Ser Glu Thr Ser Gln Met Val Met Asp Arg Ile Leu Ser His	
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Ser Gln Glu Val Ser Pro Arg Thr Ser Gly Arg Leu Ser His Ser Ser	
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Gly Pro Leu Asn Gly Ser Leu Thr Asp Ser Pro Pro Val Ser Pro Pro	
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Asn Ser Val Asn Ser Gln Phe Arg Ser Thr Ala Ala Thr Pro Gly Pro	
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Ile Thr Ala Thr Ala Thr Gln Ser Lys Thr Val Gly Arg Trp Leu Lys	
170 175 180	
gac cgg aga gag aaa aag aaa gag gag act cgg gct cat aac gct cag	748
Asp Arg Arg Glu Lys Lys Lys Glu Glu Thr Arg Ala His Asn Ala Gln	
185 190 195	
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Ala Gln Cys Val Glu Ala Ala Glu Val Met Gly Ala Glu Arg Glu Tyr	
250 255 260	
ttg gct tct gtt gtt agc tcc gcc gtc aat gtt cgt tct gcc gga gat	988
Leu Ala Ser Val Val Ser Ser Ala Val Asn Val Arg Ser Ala Gly Asp	
265 270 275	
att atg act ctc acc gcc gga gca gct aca gct tta aga gga gtg caa	1036
Ile Met Thr Leu Thr Ala Gly Ala Ala Thr Ala Leu Arg Gly Val Gln	
280 285 290 295	
aca ttg aag gca agg gca atg aag gaa gtg tgg aac ata gca tca gtg	1084

Met Glu Lys Leu Met Val Pro Thr Trp Arg Pro Asp Pro Val Tyr Arg
1 5 10 15

Pro Pro Glu Thr Pro Leu Glu Pro Met Glu Phe Leu Ala Arg Ser Trp
20 25 30

Ser Val Ser Ala Leu Glu Val Ser Lys Ala Leu Thr Pro Pro Asn Pro
35 40 45

Gln Ile Leu Leu Ser Lys Thr Glu Glu Glu Glu Glu Glu Pro Ile
50 55 60

Ser Ser Val Val Asp Gly Asp Gly Asp Thr Glu Asp Thr Gly Leu Val
65 70 75 80

Thr Gly Asn Pro Phe Ser Phe Ala Cys Ser Glu Thr Ser Gln Met Val
85 90 95

Met Asp Arg Ile Leu Ser His Ser Gln Glu Val Ser Pro Arg Thr Ser
100 105 110

Gly Arg Leu Ser His Ser Ser Gly Pro Leu Asn Gly Ser Leu Thr Asp
115 120 125

Ser Pro Pro Val Ser Pro Pro Glu Ser Asp Asp Ile Lys Gln Phe Cys
130 135 140

Arg Ala Asn Lys Asn Ser Leu Asn Ser Val Asn Ser Gln Phe Arg Ser
145 150 155 160

Thr Ala Ala Thr Pro Gly Pro Ile Thr Ala Thr Ala Thr Gln Ser Lys
165 170 175

Thr Val Gly Arg Trp Leu Lys Asp Arg Arg Glu Lys Lys Lys Glu Glu
180 185 190

Thr Arg Ala His Asn Ala Gln Ile His Ala Ala Val Ser Val Ala Gly
195 200 205

Val Ala Ala Ala Val Ala Ala Ile Ala Ala Ala Thr Ala Ala Ser Ser
210 215 220

Ser Cys Gly Lys Asp Glu Gln Met Ala Lys Thr Asp Met Ala Val Ala
225 230 235 240

Ser Ala Ala Thr Leu Val Ala Ala Gln Cys Val Glu Ala Ala Glu Val
245 250 255

Met Gly Ala Glu Arg Glu Tyr Leu Ala Ser Val Val Ser Ser Ala Val
260 265 270

Asn Val Arg Ser Ala Gly Asp Ile Met Thr Leu Thr Ala Gly Ala Ala
275 280 285

Thr Ala Leu Arg Gly Val Gln Thr Leu Lys Ala Arg Ala Met Lys Glu
290 295 300

Val Trp Asn Ile Ala Ser Val Ile Pro Met Asp Lys Gly Leu Thr Ser
305 310 315 320

Thr Gly Gly Ser Ser Asn Asn Val Asn Gly Ser Asn Gly Ser Ser Ser
325 330 335

Ser Ser His Ser Gly Glu Leu Val Gln Gln Glu Asn Phe Leu Gly Thr
340 345 350

Cys Ser Arg Glu Trp Leu Ala Arg Gly Cys Glu Leu Leu Lys Arg Thr
355 360 365

Arg Lys Gly Asp Leu His Trp Lys Ile Val Ser Val Tyr Ile Asn Lys
370 375 380

Met Asn Gln Val Met Leu Lys Met Lys Ser Arg His Val Gly Gly Thr
385 390 395 400

Phe Thr Lys Lys Lys Lys Asn Ile Val Leu Asp Val Ile Lys Asn Val
405 410 415

Pro Ala Trp Pro Gly Arg His Leu Leu Glu Gly Gly Asp Asp Leu Arg
420 425 430

Tyr Phe Gly Leu Lys Thr Val Met Arg Gly Asp Val Glu Phe Glu Val
435 440 445

Lys Ser Gln Arg Glu Tyr Glu Met Trp Thr Gln Gly Val Ser Arg Leu

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455

460

Leu Val Leu Ala Ala Glu Arg Lys Phe Arg Met
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ata aga atc aca acg cgg tgc atg tgg ctt gac aaa gga aga ctt tta 96
Ile Arg Ile Thr Thr Arg Cys Met Trp Leu Asp Lys Gly Arg Leu Leu
20 25 30

gat gca ctt cac aaa gca gct cat gct gct cta tca agt tgt cct gtg 144
Asp Ala Leu His Lys Ala Ala His Ala Ala Leu Ser Ser Cys Pro Val
35 40 45

aca tgt ccc ttg tct cac atg gaa aga aca gtc tcc gaa gtc ctg agg 192
Thr Cys Pro Leu Ser His Met Glu Arg Thr Val Ser Glu Val Leu Arg
50 55 60

aag att gta agg aag tac agt ggt aaa agg cct gaa gtc atc gct ata 240
Lys Ile Val Arg Lys Tyr Ser Gly Lys Arg Pro Glu Val Ile Ala Ile
65 70 75 80

gcc act gag aat cca atg gct gtc cga gct gat gag gtc agt gcg aga 288
Ala Thr Glu Asn Pro Met Ala Val Arg Ala Asp Glu Val Ser Ala Arg
85 90 95

ctg tct ggt gat cca agt gtt ggt tct gga gtt gca gct tta agg aaa 336
Leu Ser Gly Asp Pro Ser Val Gly Ser Gly Val Ala Ala Leu Arg Lys
100 105 110

gtt gtt gaa gga aat gac aaa aga agt cgg gcg aag aaa gca cct tca 384
Val Val Glu Gly Asn Asp Lys Arg Ser Arg Ala Lys Lys Ala Pro Ser
115 120 125

caa gaa gct tcc ccc aaa gaa gta gat cgc act ttg gaa gat gat atc 432
Gln Glu Ala Ser Pro Lys Glu Val Asp Arg Thr Leu Glu Asp Asp Ile
130 135 140

att gat agt gca aga cta ctg gct gaa gaa gaa act gcg gca tca aca 480
Ile Asp Ser Ala Arg Leu Ala Glu Glu Glu Thr Ala Ala Ser Thr
145 150 155 160

tac acg gaa gaa gtt gat acg ccc gtt ggg agt tct tca gaa gag tca 528
Tyr Thr Glu Glu Val Asp Thr Pro Val Gly Ser Ser Ser Glu Glu Ser
165 170 175

gac gat ttt tgg aaa tca ttc atc aat cca tca tcg tca cct tca cgg 576
Asp Asp Phe Trp Lys Ser Phe Ile Asn Pro Ser Ser Ser Pro Ser Pro

	180	185	190	
	agt gaa aca gaa aat atg aat aag gta gct gat acg gag cct aaa gca			624
	Ser Glu Thr Glu Asn Met Asn Lys Val Ala Asp Thr Glu Pro Lys Ala			
	195	200	205	
	gag ggt aag gaa aac agc aga gac gac gat gaa tta gct gat gct tca			672
	Glu Gly Lys Glu Asn Ser Arg Asp Asp Asp Glu Leu Ala Asp Ala Ser			
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	gat tct gaa acc aag tca tca cca aaa cgt gtg agg aag aac aaa tgg			720
	Asp Ser Glu Thr Lys Ser Ser Pro Lys Arg Val Arg Lys Asn Lys Trp			
	225	230	235	240
	aaa ccg gag gag ata aag aag gta atc aga atg cga gga gag ctg cac			768
	Lys Pro Glu Glu Ile Lys Lys Val Ile Arg Met Arg Gly Glu Leu His			
	245	250	255	
	agt aga ttt caa gtg gtg aaa ggt aga atg gca ttg tgg gaa gag atc			816
	Ser Arg Phe Gln Val Val Lys Gly Arg Met Ala Leu Trp Glu Glu Ile			
	260	265	270	
	tct tca aat cta tca gct gaa gga atc aat cga agc ccg gga caa tgc			864
	Ser Ser Asn Leu Ser Ala Glu Gly Ile Asn Arg Ser Pro Gly Gln Cys			
	275	280	285	
	aaa tct ctc tgg gca tca ctt att cag aaa tac gag gag agc aag gct			912
	Lys Ser Leu Trp Ala Ser Leu Ile Gln Lys Tyr Glu Glu Ser Lys Ala			
	290	295	300	
	gat gag aga agc aag acg agt tgg cca cat ttt gag gat atg aac aac			960
	Asp Glu Arg Ser Lys Thr Ser Trp Pro His Phe Glu Asp Met Asn Asn			
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	att ttg tca gag cta ggc aca cct gcg tct taa			993
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	325	330		
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	20	25	30	
	Asp Ala Leu His Lys Ala Ala His Ala Ala Leu Ser Ser Cys Pro Val			
	35	40	45	
	Thr Cys Pro Leu Ser His Met Glu Arg Thr Val Ser Glu Val Leu Arg			
	50	55	60	

Lys Ile Val Arg Lys Tyr Ser Gly Lys Arg Pro Glu Val Ile Ala Ile
 65 70 75 80

Ala Thr Glu Asn Pro Met Ala Val Arg Ala Asp Glu Val Ser Ala Arg
 85 90 95

Leu Ser Gly Asp Pro Ser Val Gly Ser Gly Val Ala Ala Leu Arg Lys
 100 105 110

Val Val Glu Gly Asn Asp Lys Arg Ser Arg Ala Lys Lys Ala Pro Ser
 115 120 125

Gln Glu Ala Ser Pro Lys Glu Val Asp Arg Thr Leu Glu Asp Asp Ile
 130 135 140

Ile Asp Ser Ala Arg Leu Leu Ala Glu Glu Glu Thr Ala Ala Ser Thr
 145 150 155 160

Tyr Thr Glu Glu Val Asp Thr Pro Val Gly Ser Ser Ser Glu Glu Ser
 165 170 175

Asp Asp Phe Trp Lys Ser Phe Ile Asn Pro Ser Ser Ser Pro Ser Pro
 180 185 190

Ser Glu Thr Glu Asn Met Asn Lys Val Ala Asp Thr Glu Pro Lys Ala
 195 200 205

Glu Gly Lys Glu Asn Ser Arg Asp Asp Asp Glu Leu Ala Asp Ala Ser
 210 215 220

Asp Ser Glu Thr Lys Ser Ser Pro Lys Arg Val Arg Lys Asn Lys Trp
 225 230 235 240

Lys Pro Glu Glu Ile Lys Lys Val Ile Arg Met Arg Gly Glu Leu His
 245 250 255

Ser Arg Phe Gln Val Val Lys Gly Arg Met Ala Leu Trp Glu Glu Ile
 260 265 270

Ser Ser Asn Leu Ser Ala Glu Gly Ile Asn Arg Ser Pro Gly Gln Cys
 275 280 285

Lys Ser Leu Trp Ala Ser Leu Ile Gln Lys Tyr Glu Glu Ser Lys Ala

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300

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ttcggctgaa tataaatctg aaaaa atg gat caa gat cag cat cct cag tac 112
Met Asp Gln Asp Gln His Pro Gln Tyr
1 5

ggt ata ccg gag ctc cgg cag ctc atg aaa ggc gga gga agg acg act 160
Gly Ile Pro Glu Leu Arg Gln Leu Met Lys Gly Gly Gly Arg Thr Thr
10 15 20 25

act aca aca ccg tct act tct tct cat ttt ccc tct gat ttc ttc ggt 208
Thr Thr Thr Pro Ser Thr Ser Ser His Phe Pro Ser Asp Phe Phe Gly
30 35 40

ttt aac ctt gct ccg gtg cag cca ccg cca cac cgt ctt cat cag ttc 256
Phe Asn Leu Ala Pro Val Gln Pro Pro His Arg Leu His Gln Phe
45 50 55

act act gat caa gat atg ggt ttc ttg cca cgt ggc ata cat gga ttg 304
Thr Thr Asp Gln Asp Met Gly Phe Leu Pro Arg Gly Ile His Gly Leu
60 65 70

ggt gga ggt tct tca acg gct gga aat aac agt aac tta aac gcg agt 352
Gly Gly Gly Ser Ser Thr Ala Gly Asn Asn Ser Asn Leu Asn Ala Ser
75 80 85

act agt ggt gga gga gtt ggg ttt agt ggg ttt ctt gac ggt ggt ggt 400
Thr Ser Gly Gly Gly Val Gly Phe Ser Gly Phe Leu Asp Gly Gly Gly
90 95 100 105

ttc ggc agc gga gta gga gga gac ggt gga gga act gga agg tgg ccg 448
Phe Gly Ser Gly Val Gly Gly Asp Gly Gly Gly Thr Gly Arg Trp Pro
110 115 120

aga caa gaa acc cta act ctg ttg gaa att aga tct cgt ctt gat cat 496
Arg Gln Glu Thr Leu Thr Leu Leu Glu Ile Arg Ser Arg Leu Asp His
125 130 135

aaa ttc aaa gaa gct aat cat aaa gga cct ctt tgg gat gaa gtt tct 544
Lys Phe Lys Glu Ala Asn His Lys Gly Pro Leu Trp Asp Glu Val Ser
140 145 150

agg att atg tcc gag gaa cat gga tac caa agg agt ggg aag aaa tgc Arg Ile Met Ser Glu Glu His Gly Tyr Gln Arg Ser Gly Lys Lys Cys 155 160	592
aga gag aag ttt gag aat ctg tac aaa tac tat agt aag act aaa gaa Arg Glu Lys Phe Glu Asn Leu Tyr Lys Tyr Tyr Ser Lys Thr Lys Glu 170 175 180 185	640
ggc gaa gcc gga aga caa gac gga aaa cat cac aga ttt ttc cgc cag Gly Glu Ala Gly Arg Gln Asp Gly Lys His His Arg Phe Phe Arg Gln 190 195 200	688
ctc caa gcg cta tac ggg gat tct aat aac ttg gtt tct tgt ccc aat Leu Gln Ala Leu Tyr Gly Asp Ser Ser Asn Asn Leu Val Ser Cys Pro Asn 205 210 215	736
cat aac acg cag ttc atg agc agt gct ctt cat ggt ttc cat act caa His Asn Thr Gln Phe Met Ser Ser Ala Leu His Gly Phe His Thr Gln 220 225 230	784
aac cct atg aac gtt gct aca aca acg tcc aac atc cat aac gtt gat Asn Pro Met Asn Val Ala Thr Thr Thr Ser Asn Ile His Asn Val Asp 235 240 245	832
agt gtt cat ggt ttt cat caa agc ctt agt ctt aac aac tac aac Ser Val His Gly Phe His Gln Ser Ser Leu Ser Leu Ser Asn Asn Tyr Asn 250 255 260 265	880
tcc tcc gag ctt gag ctg atg act tcc tct tcg gaa ggg aat gat tct Ser Ser Glu Leu Glu Leu Met Thr Ser Ser Ser Glu Gly Asn Asp Ser 270 275 280	928
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att gat acg aac atg aaa agg ttg ata gag agg caa gat gtt tgg ctt Ile Asp Thr Asn Met Lys Arg Leu Ile Glu Arg Gln Asp Val Trp Leu 300 305 310	1024
gag aag ttg aca aag gtt att gaa gac aaa gag gaa caa cgg atg atg Glu Lys Leu Thr Lys Val Ile Glu Asp Lys Glu Glu Gln Arg Met Met 315 320 325	1072
aaa gaa gag gaa tgg agg aag att gaa gct gca agg att gat aaa gag Lys Glu Glu Glu Trp Arg Lys Ile Glu Ala Ala Arg Ile Asp Lys Glu 330 335 340 345	1120
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ccg ctg tgt tca tcc ccg gaa gag agg aca aat qgt aat aat gaq atc	1264

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Arg	Asn	Asn	Ser	Glu	Thr	Gln	Asn	Glu	Asn	Gly	Ser	Asp	Gln	Thr	Met		
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Thr	Asn	Asn	Val	Cys	Val	Lys	Gly	Ser	Ser	Ser	Cys	Trp	Gly	Glu	Gln		
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Glu	Ile	Leu	Lys	Met	Glu	Ile	Arg	Thr	Ser	Met	Asp	Ser	Thr	Phe			
			430					435					440				
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Gln	Glu	Ile	Leu	Gly	Gly	Cys	Ser	Asp	Glu	Phe	Leu	Trp	Glu	Glu	Ile		
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Ala	Ala	Lys	Leu	Ile	Gln	Leu	Gly	Phe	Asp	Gln	Arg	Ser	Ala	Leu	Leu		
		460					465					470					
tgc	aag	gaa	aag	tggt	gaa	tggt	ata	agc	aat	gga	atg	agg	aaa	gaa	aag	1552	
Cys	Lys	Glu	Lys	Trp	Glu	Trp	Ile	Ser	Asn	Gly	Met	Arg	Lys	Glu	Lys		
	475					480				485							
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Lys	Gln	Ile	Asn	Lys	Lys	Arg	Lys	Asp	Asn	Ser	Ser	Ser	Cys	Gly	Val		
	490				495					500				505			
tac	tac	ccg	aga	aac	gaa	gaa	aat	cca	atc	tac	aat	aat	cga	gaa	agt	1648	
Tyr	Tyr	Pro	Arg	Asn	Glu	Glu	Asn	Pro	Ile	Tyr	Asn	Asn	Arg	Glu	Ser		
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gga	tat	aat	gat	aat	gat	ccg	cat	caa	atc	aac	gaa	caa	ggc	aat	gta	1696	
Gly	Tyr	Asn	Asp	Asn	Asp	Pro	His	Gln	Ile	Asn	Glu	Gln	Gly	Asn	Val		
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ggt	tct	tca	aca	tca	aac	gca	aac	gca	aac	gca	aac	gta	acc	act	gga	1744	
Gly	Ser	Ser	Thr	Ser	Asn	Ala	Asn	Ala	Asn	Ala	Asn	Val	Thr	Thr	Gly		
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aat	ccg	agc	ggt	gca	atg	gct	gct	agt	aca	aac	tgc	ttc	ccg	ttc	ttc	1792	
Asn	Pro	Ser	Gly	Ala	Met	Ala	Ala	Ser	Thr	Asn	Cys	Phe	Pro	Phe	Phe		
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Met	Gly	Asp	Gly	Asp	Gln	Asn	Leu	Trp	Glu	Ser	Tyr	Gly	Leu	Arg	Leu		
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agt	aaa	gaa	gag	aat	cag	taa	gtaatttctc	ttaatgaaga	agaagaaggt							1891	
Ser	Lys	Glu	Glu	Asn	Gln												
				590													
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Ser His Phe Pro Ser Asp Phe Phe Gly Phe Asn Leu Ala Pro Val Gln
 35 40 45

Pro Pro Pro His Arg Leu His Gln Phe Thr Thr Asp Gln Asp Met Gly
 50 55 60

Phe Leu Pro Arg Gly Ile His Gly Leu Gly Gly Gly Ser Ser Thr Ala
 65 70 75 80

Gly Asn Asn Ser Asn Leu Asn Ala Ser Thr Ser Gly Gly Gly Val Gly
 85 90 95

Phe Ser Gly Phe Leu Asp Gly Gly Gly Phe Gly Ser Gly Val Gly Gly
 100 105 110

Asp Gly Gly Gly Thr Gly Arg Trp Pro Arg Gln Glu Thr Leu Thr Leu
 115 120 125

Leu Glu Ile Arg Ser Arg Leu Asp His Lys Phe Lys Glu Ala Asn His
 130 135 140

Lys Gly Pro Leu Trp Asp Glu Val Ser Arg Ile Met Ser Glu Glu His
 145 150 155 160

Gly Tyr Gln Arg Ser Gly Lys Lys Cys Arg Glu Lys Phe Glu Asn Leu
 165 170 175

Tyr Lys Tyr Tyr Ser Lys Thr Lys Glu Gly Glu Ala Gly Arg Gln Asp
 180 185 190

Gly Lys His His Arg Phe Phe Arg Gln Leu Gln Ala Leu Tyr Gly Asp
195 200 205

Ser Asn Asn Leu Val Ser Cys Pro Asn His Asn Thr Gln Phe Met Ser
210 215 220

Ser Ala Leu His Gly Phe His Thr Gln Asn Pro Met Asn Val Ala Thr
225 230 235 240

Thr Thr Ser Asn Ile His Asn Val Asp Ser Val His Gly Phe His Gln
245 250 255

Ser Leu Ser Leu Ser Asn Asn Tyr Asn Ser Ser Glu Leu Glu Leu Met
260 265 270

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275 280 285

Ser Trp Lys Ala Lys Ile Lys Glu Phe Ile Asp Thr Asn Met Lys Arg
290 295 300

Leu Ile Glu Arg Gln Asp Val Trp Leu Glu Lys Leu Thr Lys Val Ile
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Glu Asp Lys Glu Glu Gln Arg Met Met Lys Glu Glu Glu Trp Arg Lys
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340 345 350

Arg Ala Arg Met Glu Ala Arg Asp Val Ala Val Ile Glu Ala Leu Gln
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Tyr Leu Thr Gly Lys Pro Leu Ile Lys Pro Leu Cys Ser Ser Pro Glu
370 375 380

Glu Arg Thr Asn Gly Asn Asn Glu Ile Arg Asn Asn Ser Glu Thr Gln
385 390 395 400

Asn Glu Asn Gly Ser Asp Gln Thr Met Thr Asn Asn Val Cys Val Lys
405 410 415

Gly Ser Ser Ser Cys Trp Gly Glu Gln Glu Ile Leu Lys Leu Met Glu
420 425 430

Ile Arg Thr Ser Met Asp Ser Thr Phe Gln Glu Ile Leu Gly Gly Cys
435 440 445

Ser Asp Glu Phe Leu Trp Glu Glu Ile Ala Ala Lys Leu Ile Gln Leu
450 455 460

Gly Phe Asp Gln Arg Ser Ala Leu Leu Cys Lys Glu Lys Trp Glu Trp
465 470 475 480

Ile Ser Asn Gly Met Arg Lys Glu Lys Lys Gln Ile Asn Lys Lys Arg
485 490 495

Lys Asp Asn Ser Ser Ser Cys Gly Val Tyr Tyr Pro Arg Asn Glu Glu
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Asn Pro Ile Tyr Asn Asn Arg Glu Ser Gly Tyr Asn Asp Asn Asp Pro
515 520 525

His Gln Ile Asn Glu Gln Gly Asn Val Gly Ser Ser Thr Ser Asn Ala
530 535 540

Asn Ala Asn Ala Asn Val Thr Thr Gly Asn Pro Ser Gly Ala Met Ala
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1 5 10 15

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Ala Trp Thr Pro Glu Glu Asp Gln Lys Leu Leu Ser Tyr Leu Asn Arg

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Met Asp Thr Asn Thr Ser
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Gly Glu Glu Leu Leu Ala Lys Ala Arg Lys Pro Tyr Thr Ile Thr Lys
10 15 20

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Gln Arg Glu Arg Trp Thr Glu Asp Glu His Glu Arg Phe Leu Glu Ala
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Leu Arg Leu Tyr Gly Arg Ala Trp Gln Arg Ile Glu Glu His Ile Gly
40 45 50

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Thr Lys Thr Ala Val Gln Ile Arg Ser His Ala Gln Lys Phe Phe Thr
55 60 65 70

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Lys Leu Glu Lys Glu Ala Glu Val Lys Gly Ile Pro Val Cys Gln Ala
75 80 85

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Leu Asp Ile Glu Ile Pro Pro Pro Arg Pro Lys Arg Lys Pro Asn Thr
90 95 100

cct tat cct cga aaa cct ggg aac aac ggt aca tct tcc tct caa gta 691
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Lys Lys Asn Lys Asp Lys Asp Gly Asn Asp Gly Thr Thr Val His Ser	
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atg caa aac tac cct tgg cat ttc cac gca gat att gtg aac ggg aat	1027
Met Gln Asn Tyr Pro Trp His Phe His Ala Asp Ile Val Asn Gly Asn	
215 220 225 230	
ata gca aaa tgc cct caa aat cat ccc tca ggt atg gta tct caa gac	1075
Ile Ala Lys Cys Pro Gln Asn His Pro Ser Gly Met Val Ser Gln Asp	
235 240 245	
ttc atg ttt cat cct atg aga gaa gaa act cac ggg cac gca aat ctt	1123
Phe Met Phe His Pro Met Arg Glu Glu Thr His Gly His Ala Asn Leu	
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Gln Ala Thr Thr Ala Ser Ala Thr Thr Thr Ala Ser His Gln Ala Phe	
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Pro Ala Cys His Ser Gln Asp Asp Tyr Arg Ser Phe Leu Gln Ile Ser	
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Ser Thr Phe Ser Asn Leu Ile Met Ser Thr Leu Leu Gln Asn Pro Ala	
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Ala His Ala Ala Thr Phe Ala Ala Ser Val Trp Pro Tyr Ala Ser	
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Val Gly Asn Ser Gly Asp Ser Ser Thr Pro Met Ser Ser Ser Pro Pro	
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Ser Ile Thr Ala Ile Ala Ala Thr Val Ala Ala Thr Ala Trp	
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Trp Ala Ser His Gly Leu Pro Val Cys Ala Pro Ala Pro Ile Thr	
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Cys Val Pro Phe Ser Thr Val Ala Val Pro Thr Pro Ala Met Thr Glu	
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Leu Gln Asp Gln Thr Leu Ala Ser Lys Ser Pro Ala Ser Ser Ser Asp	
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Asp Ser Asp Glu Thr Gly Val Thr Lys Leu Asn Ala Asp Ser Lys Thr	
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Asn Asp Asp Lys Ile Glu Glu Val Val Val Thr Ala Val His Asp	
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Ser Asn Thr Ala Gln Lys Lys Asn Leu Val Asp Arg Ser Ser Cys Gly	
455 460 465 470	
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Ser Asn Thr Pro Ser Gly Ser Asp Ala Glu Thr Asp Ala Leu Asp Lys	
475 480 485	
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Met Glu Lys Asp Lys Glu Asp Val Lys Glu Thr Asp Glu Asn Gln Pro	
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Asp Val Ile Glu Leu Asn Asn Arg Lys Ile Lys Met Arg Asp Asn Asn	
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Ser Asn Asn Asn Ala Thr Thr Asp Ser Trp Lys Glu Val Ser Glu Glu	
520 525 530	
ggt cgt ata gcg ttt cag gct ctc ttt gca aga gaa aga ttg cct caa	1987
Gly Arg Ile Ala Phe Gln Ala Leu Phe Ala Arg Glu Arg Leu Pro Gln	
535 540 545 550	
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105

110

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165 170 175

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180 185 190

Ala Val Gln Asp Val Pro Lys Lys Asn Lys Asp Lys Asp Gly Asn Asp
195 200 205

Gly Thr Thr Val His Ser Met Gln Asn Tyr Pro Trp His Phe His Ala
210 215 220

Asp Ile Val Asn Gly Asn Ile Ala Lys Cys Pro Gln Asn His Pro Ser
225 230 235 240

Gly Met Val Ser Gln Asp Phe Met Phe His Pro Met Arg Glu Glu Thr
245 250 255

His Gly His Ala Asn Leu Gln Ala Thr Thr Ala Ser Ala Thr Thr Thr
260 265 270

Ala Ser His Gln Ala Phe Pro Ala Cys His Ser Gln Asp Asp Tyr Arg
275 280 285

Ser Phe Leu Gln Ile Ser Ser Thr Phe Ser Asn Leu Ile Met Ser Thr
290 295 300

Leu Leu Gln Asn Pro Ala Ala His Ala Ala Ala Thr Phe Ala Ala Ser
305 310 315 320

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325 330 335

Met Ser Ser Ser Pro Pro Ser Ile Thr Ala Ile Ala Ala Thr Val
340 345 350

Ala Ala Ala Thr Ala Trp Trp Ala Ser His Gly Leu Leu Pro Val Cys
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Glu Lys Gln Asn Thr Ala Leu Gln Asp Gln Thr Leu Ala Ser Lys Ser
405 410 415

Pro Ala Ser Ser Ser Asp Asp Ser Asp Glu Thr Gly Val Thr Lys Leu
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Thr Asp Glu Asn Gln Pro Asp Val Ile Glu Leu Asn Asn Arg Lys Ile
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Lys Met Arg Asp Asn Asn Ser Asn Asn Asn Ala Thr Thr Asp Ser Trp
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Lys Ser Gln Asp Ser Cys Ala Ala Asp Gln Glu Gly Val Val Met Ile
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595 600 605

Pro Tyr Lys Arg Cys Ser Met Glu Val Lys Glu Ser Gln Val Gly Asn
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ttcttctcca gttctcatct ggggtttctca atg gcg agt gtt gaa ggt gat gat 294
Met Ala Ser Val Glu Gly Asp Asp
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gat ttc gga agt tct tcg tca agg tct tat caa gat caa cta tac aca 342
Asp Phe Gly Ser Ser Ser Ser Arg Ser Tyr Gln Asp Gln Leu Tyr Thr
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Glu Leu Trp Lys Val Cys Ala Gly Pro Leu Val Glu Val Pro Arg Ala
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caa gag aga gtt ttc tac ttc cct cag ggt cac atg gaa caa ctt gtg 438
Gln Glu Arg Val Phe Tyr Phe Pro Gln Gly His Met Glu Gln Leu Val
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Ala Ser Thr Asn Gln Gly Ile Asn Ser Glu Glu Ile Pro Val Phe Asp
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Leu Pro Pro Lys Ile Leu Cys Arg Val Leu Asp Val Thr Leu Lys Ala	
75 80 85	
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Glu His Glu Thr Asp Glu Val Tyr Ala Gln Ile Thr Leu Gln Pro Glu	
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gaa gat caa agt gaa cca aca agt ctt gat cca cct att gtt gga cca	630
Glu Asp Gln Ser Glu Pro Thr Ser Leu Asp Pro Ile Val Gly Pro	
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act aag caa gag ttt cat tcg ttt gtt aag att tta acg gct tca gat	678
Thr Lys Gln Glu Phe His Ser Phe Val Lys Ile Leu Thr Ala Ser Asp	
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Thr Ser Thr His Gly Gly Phe Ser Val Leu Arg Lys His Ala Thr Glu	
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Cys Leu Pro Ser Leu Asp Met Thr Gln Ala Thr Pro Thr Gln Glu Leu	
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Val Thr Arg Asp Leu His Gly Phe Glu Trp Arg Phe Lys His Ile Phe	
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Arg Gly Gln Pro Arg Arg His Leu Leu Thr Thr Gly Trp Ser Thr Phe	
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Val Ser Ser Lys Arg Leu Val Ala Gly Asp Ala Phe Val Phe Leu Arg	
205 210 215	
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Gly Glu Asn Gly Asp Leu Arg Val Gly Val Arg Arg Leu Ala Arg His	
220 225 230	
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Gln Ser Thr Met Pro Thr Ser Val Ile Ser Ser Gln Ser Met His Leu	
235 240 245	
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Gly Val Leu Ala Thr Ala Ser His Ala Val Arg Thr Thr Thr Ile Phe	
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Val Val Phe Tyr Lys Pro Arg Ile Ser Gln Phe Ile Val Gly Val Asn	
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Lys Tyr Met Glu Ala Ile Lys His Gly Phe Ser Leu Gly Thr Arg Phe	
285 290 295	
aga atg agg ttt gaa gga gaa gag tct cct gag aga ata ttt act ggt	1206

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Trp	Arg	Ser	Leu	Gln	Val	Gln	Trp	Asp	Glu	Pro	Thr	Thr	Val	Gln	Arg		
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Pro	Asp	Lys	Val	Ser	Pro	Trp	Glu	Ile	Glu	Pro 355	Phe	Leu	Ala	Thr	Ser 360		
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Pro	Ile	Ser	Thr	Pro	Ala	Gln	Gln	Pro	Gln	Ser	Lys	Cys	Lys	Arg	Ser 375		
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Tyr	Ser	Leu 395	Pro	Gln	Ser	Gln	Asp	Ser	Ile	Asn	Ala	Ser	Leu	Lys	Leu		
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Phe	Gln	Asp	Pro	Ser	Leu	Glu 415	Arg	Ile	Ser	Gly	Gly 420	Tyr	Ser	Ser	Asn		
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Asn	Ser	Phe	Lys	Pro	Glu 430	Thr	Pro	Pro	Pro	Pro	Thr	Asn	Cys	Ser	Tyr 440		
agg	ttg	ttt	gga	ttt	gat	ctc	aca	agc	aat	tct	cct	gct	cca	atc	cct	1638	
Arg	Leu	Phe	Gly 445	Phe	Asp	Leu	Thr	Ser	Asn 450	Ser	Pro	Ala	Pro	Ile	Pro 455		
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Gln	Asp	Lys	Gln 460	Pro	Met	Asp	Thr	Cys 465	Gly	Ala	Ala	Lys	Cys 470	Gln	Glu		
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Pro	Ile	Thr 475	Pro	Thr	Ser	Met	Ser 480	Glu	Gln	Lys	Lys	Gln 485	Gln	Thr	Ser		
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gag	gag	atg	ttt	gat	att	caa	gga	cag	ctt	ctt	gcc	cga	gac	aaa	tggt	1878	
Glu	Glu	Met	Phe	Glu	Ile	Gln	Gly	Gln	Leu	Leu	Ala	Arg	Asp	Lys	Trp		

Leu Asp Pro Pro Ile Val Gly Pro Thr Lys Gln Glu Phe His Ser Phe
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Val Lys Ile Leu Thr Ala Ser Asp Thr Ser Thr His Gly Gly Phe Ser
130 135 140

Val Leu Arg Lys His Ala Thr Glu Cys Leu Pro Ser Leu Asp Met Thr
145 150 155 160

Gln Ala Thr Pro Thr Gln Glu Leu Val Thr Arg Asp Leu His Gly Phe
165 170 175

Glu Trp Arg Phe Lys His Ile Phe Arg Gly Gln Pro Arg Arg His Leu
180 185 190

Leu Thr Thr Gly Trp Ser Thr Phe Val Ser Ser Lys Arg Leu Val Ala
195 200 205

Gly Asp Ala Phe Val Phe Leu Arg Gly Glu Asn Gly Asp Leu Arg Val
210 215 220

Gly Val Arg Arg Leu Ala Arg His Gln Ser Thr Met Pro Thr Ser Val
225 230 235 240

Ile Ser Ser Gln Ser Met His Leu Gly Val Leu Ala Thr Ala Ser His
245 250 255

Ala Val Arg Thr Thr Thr Ile Phe Val Val Phe Tyr Lys Pro Arg Ile
260 265 270

Ser Gln Phe Ile Val Gly Val Asn Lys Tyr Met Glu Ala Ile Lys His
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Gly Phe Ser Leu Gly Thr Arg Phe Arg Met Arg Phe Glu Gly Glu Glu
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Ser Pro Glu Arg Ile Phe Thr Gly Thr Ile Val Gly Ser Gly Asp Leu
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325 330 335

Asp Glu Pro Thr Thr Val Gln Arg Pro Asp Lys Val Ser Pro Trp Glu
340 345 350

Ile Glu Pro Phe Leu Ala Thr Ser Pro Ile Ser Thr Pro Ala Gln Gln
355 360 365

Pro Gln Ser Lys Cys Lys Arg Ser Arg Pro Ile Glu Pro Ser Val Lys
370 375 380

Thr Pro Ala Pro Pro Ser Phe Leu Tyr Ser Leu Pro Gln Ser Gln Asp
385 390 395 400

Ser Ile Asn Ala Ser Leu Lys Leu Phe Gln Asp Pro Ser Leu Glu Arg
405 410 415

Ile Ser Gly Gly Tyr Ser Ser Asn Asn Ser Phe Lys Pro Glu Thr Pro
420 425 430

Pro Pro Pro Thr Asn Cys Ser Tyr Arg Leu Phe Gly Phe Asp Leu Thr
435 440 445

Ser Asn Ser Pro Ala Pro Ile Pro Gln Asp Lys Gln Pro Met Asp Thr
450 455 460

Cys Gly Ala Ala Lys Cys Gln Glu Pro Ile Thr Pro Thr Ser Met Ser
465 470 475 480

Glu Gln Lys Lys Gln Gln Thr Ser Arg Ser Arg Thr Lys Val Gln Met
485 490 495

Gln Gly Ile Ala Val Gly Arg Ala Val Asp Leu Thr Leu Lys Ser
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Tyr Asp Glu Leu Ile Asp Glu Leu Glu Glu Met Phe Glu Ile Gln Gly
515 520 525

Gln Leu Leu Ala Arg Asp Lys Trp Ile Val Val Phe Thr Asp Asp Glu
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Gly Asp Met Met Leu Ala Gly Asp Asp Pro Trp Asn Glu Phe Cys Lys
545 550 555 560

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Ala Phe Asn Thr Arg Thr Ile Lys Asn Glu Glu Thr His Pro Pro
20 25 30
gag caa gaa gcc aca ata gcc gtt aga tca tca tca tca tgc gat ctg 144
Glu Gln Glu Ala Thr Ile Ala Val Arg Ser Ser Ser Ser Ser Asp Leu
35 40 45
acg gcc gag aag cgt ccg gat aag atc ata gca tgt cca aga tgc aag 192
Thr Ala Glu Lys Arg Pro Asp Lys Ile Ile Ala Cys Pro Arg Cys Lys
50 55 60
agc atg gag aca aag ttc tgt tac ttc aac aac tac aac ggt aat cag 240
Ser Met Glu Thr Lys Phe Cys Tyr Phe Asn Asn Tyr Asn Gly Asn Gln
65 70 75 80
cct cga cac ttt tgt aaa ggc tgc cac cgt tac tgg acc gcc ggt ggt 288
Pro Arg His Phe Cys Lys Gly Cys His Arg Tyr Trp Thr Ala Gly Gly
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gca ctc cgg aac gtt ccc gtc gcc gcc ggt cgt cgg aag tcc aaa cca 336
Ala Leu Arg Asn Val Pro Val Gly Ala Gly Arg Arg Lys Ser Lys Pro
100 105 110
cct ggt cgt gtc gtg gtt ggt atg ctt gga gat gga aat ggt gtt cgc 384
Pro Gly Arg Val Val Val Gly Met Leu Gly Asp Gly Asn Gly Val Arg
115 120 125
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Gln Val Glu Leu Ile Asn Gly Leu Leu Val Glu Glu Trp Gln His Ala
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gca gcc gca gct cac ggt agt ttc cgg cat gat ttt ccc atg aag cgg 480
Ala Ala Ala Ala His Gly Ser Phe Arg His Asp Phe Pro Met Lys Arg
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35 40 45

Thr Ala Glu Lys Arg Pro Asp Lys Ile Ile Ala Cys Pro Arg Cys Lys
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Pro Arg His Phe Cys Lys Gly Cys His Arg Tyr Trp Thr Ala Gly Gly
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Ala Leu Arg Asn Val Pro Val Gly Ala Gly Arg Arg Lys Ser Lys Pro
100 105 110

Pro Gly Arg Val Val Val Gly Met Leu Gly Asp Gly Asn Gly Val Arg
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Cys Ser Ser Gly Ser Ser Val Thr	Thr Ser Asn Asn His Ser Val Asp			
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gaa tca aga gca caa agc ggc agt gtt gtt	gaa gca caa atg aac aac	931		
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	265	270	275	
aac aac aac aat aac atg aat ggt tat gct	tgc atc cca ggt gtt cca	979		
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Trp Pro Tyr Thr Trp Asn	Pro Ala Met Pro Pro Gly Phe Tyr Pro			
	295	300	305	310
cct cca ggg tat cca atg cgg ttt tac cct	tac tgg acc atc cca atg	1075		
Pro Pro Gly Tyr Pro Met Pro Phe Tyr	Pro Tyr Trp Thr Ile Pro Met			
	315	320	325	
cta cca cgg cat caa tcc tca tcc cct ata agc	caa aag tgt tca aat	1123		
Leu Pro Pro His Gln Ser Ser Ser	Pro Ile Ser Gln Lys Cys Ser Asn			
	330	335	340	
aca aac tct ccg act ctc gga aag cat ccg aga gat	gaa gga tca tcc	1171		
Thr Asn Ser Pro Thr Leu Gly Lys His	Pro Arg Asp Glu Gly Ser Ser			
	345	350	355	
aaa aag gac aat gag aca gag cga aaa cag aag gcc	ggg tgc gtt ctg	1219		
Lys Lys Asp Asn Glu Thr Glu Arg Lys Gln Lys Ala	Gly Cys Val Leu			
	360	365	370	
gtc ccg aaa acg ttg aga ata gat gat cct aac	gaa gca gca aag agc	1267		
Val Pro Lys Thr Leu Arg Ile Asp Asp Pro Asn	Glu Ala Ala Lys Ser			
	375	380	385	390
tgc ata tgg aca aca ttg gga atc aag aac gag cgg atg	tgc aaa gcc	1315		
Ser Ile Trp Thr Thr Leu Gly Ile Lys Asn Glu Ala Met Cys Lys Ala				
	395	400	405	
ggg ggt atg ttc aaa ggg ttt gat cat aag aca aag atg	tat aac aac	1363		
Gly Gly Met Phe Lys Gly Phe Asp His Lys Thr Lys Met Tyr Asn Asn				
	410	415	420	
gac aaa gct gag aac tcc cct gtt ctt tct gct aac cct	gct gct cta	1411		
Asp Lys Ala Glu Asn Ser Pro Val Leu Ser Ala Asn Pro Ala Ala Leu				
	425	430	435	
tca aga tca cac aat ttc cat gaa cag att tag agttacatat gtatatgtat	1464			
Ser Arg Ser His Asn Phe His Glu Gln Ile				
	440	445		

atagtgtatga ttgattgtat gtagatga tactggagaa tgatgagttt ttgagaatca 1524
aactcttttc ttctttctag tgattgcott tattccttta catgttttgg ttctctgtac 1584
actatttgat ttaccttttt tactttcttt cttoatttgt caggaaatgt tggaagataa 1644
cattaatggt aaaaagtgg tgtggaccgt tgttgcgttg gcatttcaaa aaaaaaaaaa 1704
aaa 1707

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Met Met Met Glu Thr Arg Asp Pro Ala Ile Lys Leu Phe Gly Met Lys
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Ile Pro Phe Pro Ser Val Phe Glu Ser Ala Val Thr Val Glu Asp Asp
20 25 30

Glu Glu Asp Asp Trp Ser Gly Gly Asp Asp Lys Ser Pro Glu Lys Val
35 40 45

Thr Pro Glu Leu Ser Asp Lys Asn Asn Asn Asn Cys Asn Asp Asn Ser
50 55 60

Phe Asn Asn Ser Lys Pro Glu Thr Leu Asp Lys Glu Glu Ala Thr Ser
65 70 75 80

Thr Asp Gln Ile Glu Ser Ser Asp Thr Pro Glu Asp Asn Gln Gln Thr
85 90 95

Thr Pro Asp Gly Lys Thr Leu Lys Lys Pro Thr Lys Ile Leu Pro Cys
100 105 110

Pro Arg Cys Lys Ser Met Glu Thr Lys Phe Cys Tyr Tyr Asn Asn Tyr
115 120 125

Asn Ile Asn Gln Pro Arg His Phe Cys Lys Ala Cys Gln Arg Tyr Trp
130 135 140

Thr Ala Gly Gly Thr Met Arg Asn Val Pro Val Gly Ala Gly Arg Arg
145 150 155 160

Lys Asn Lys Ser Ser Ser His Tyr Arg His Ile Thr Ile Ser Glu
165 170 175

Ala Leu Glu Ala Ala Arg Leu Asp Pro Gly Leu Gln Ala Asn Thr Arg
180 185 190

Val Leu Ser Phe Gly Leu Glu Ala Gln Gln Gln His Val Ala Ala Pro
195 200 205

Met Thr Pro Val Met Lys Leu Gln Glu Asp Gln Lys Val Ser Asn Gly
210 215 220

Ala Arg Asn Arg Phe His Gly Leu Ala Asp Gln Arg Leu Val Ala Arg
225 230 235 240

Val Glu Asn Gly Asp Asp Cys Ser Ser Gly Ser Ser Val Thr Thr Ser
245 250 255

Asn Asn His Ser Val Asp Glu Ser Arg Ala Gln Ser Gly Ser Val Val
260 265 270

Glu Ala Gln Met Asn Asn Asn Asn Asn Asn Met Asn Gly Tyr Ala
275 280 285

Cys Ile Pro Gly Val Pro Trp Pro Tyr Thr Trp Asn Pro Ala Met Pro
290 295 300

Pro Pro Gly Phe Tyr Pro Pro Gly Tyr Pro Met Pro Phe Tyr Pro
305 310 315 320

Tyr Trp Thr Ile Pro Met Leu Pro Pro His Gln Ser Ser Ser Pro Ile
325 330 335

Ser Gln Lys Cys Ser Asn Thr Asn Ser Pro Thr Leu Gly Lys His Pro
340 345 350

Arg Asp Glu Gly Ser Ser Lys Lys Asp Asn Glu Thr Glu Arg Lys Gln
355 360 365

Lys Ala Gly Cys Val Leu Val Pro Lys Thr Leu Arg Ile Asp Asp Pro
370 375 380

Asn Glu Ala Ala Lys Ser Ile Trp Thr Thr Leu Gly Ile Lys Asn
385 390 395 400

Glu Ala Met Cys Lys Ala Gly Gly Met Phe Lys Gly Phe Asp His Lys
405 410 415

Thr Lys Met Tyr Asn Asn Asp Lys Ala Glu Asn Ser Pro Val Leu Ser
420 425 430

Ala Asn Pro Ala Ala Leu Ser Arg Ser His Asn Phe His Glu Gln Ile
435 440 445

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atgtgtatat tcttggaaaa agaataatata tattgagaaa taagaaaaag atg aaa atg 118
Met Lys Met
1

gaa aat ggt atg tat aaa aag aaa gga gtg tgc gac tct tgt gtc tgc 166
Glu Asn Gly Met Tyr Lys Lys Lys Gly Val Cys Asp Ser Cys Val Ser
5 10 15

tcc aaa agc aga tcc aac cac agc ccc aaa aga agc atg atg gag cct 214
Ser Lys Ser Arg Ser Asn His Ser Pro Lys Arg Ser Met Met Glu Pro
20 25 30 35

cag cct cac cat ctc ctc atg gat tgg aac aaa gct aat gat ctt ctc 262
Gln Pro His His Leu Leu Met Asp Trp Asn Lys Ala Asn Asp Leu Leu
40 45 50

aca caa gaa cac gca gct ttt ctc aat gat cct cac cat ctc atg tta 310
Thr Gln Glu His Ala Ala Phe Leu Asn Asp Pro His His Leu Met Leu
55 60 65

gat cca cct ccc gaa acc cta att cac ttg gac gaa gac gaa gag tac 358
Asp Pro Pro Pro Glu Thr Leu Ile His Leu Asp Glu Asp Glu Glu Tyr
70 75 80

gat gaa gac atg gat gcg atg aag gag atg cag tac atg atc gcc gtc 406
Asp Glu Asp Met Asp Ala Met Lys Glu Met Gln Tyr Met Ile Ala Val
85 90 95

atg cag ccc gta gac atc gac cct gcc acg gtc cct aag cag aac cgc 454
Met Gln Pro Val Asp Ile Asp Pro Ala Thr Pro Lys Pro Asn Arg
100 105 110 115

cgt aac gta agg ata agc gac gat cct cag acg gtg gtt gct cgt cgg 502
Arg Asn Val Arg Ile Ser Asp Asp Pro Gln Thr Val Val Ala Arg Arg
120 125 130

cgt cgg gaa agg atc agc gag aag atc cga att ctc aag agg atc gtc 550
Arg Arg Glu Arg Ile Ser Glu Lys Ile Arg Ile Leu Lys Arg Ile Val
135 140 145

cct ggt ggt gcg aag atg gac aca gct tcc atg ctc gac gaa gcc ata 598
 Pro Gly Gly Ala Lys Met Asp Thr Ala Ser Met Leu Asp Glu Ala Ile
 150 155 160

cgt tac acc aag ttc ttg aaa cgg cag gtg agg att ctt cag cct cac 646
 Arg Tyr Thr Lys Phe Leu Lys Arg Gln Val Arg Ile Leu Gln Pro His
 165 170 175

tct cag att gga gct cct atg gct aac ccc tct tac ctt tgt tat tac 694
 Ser Gln Ile Gly Ala Pro Met Ala Asn Pro Ser Tyr Leu Cys Tyr Tyr
 180 185 190 195

cac aac tcc caa ccc tga tgaactacac agaagctcgc tagctagaca 742
 His Asn Ser Gln Pro
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tttggtgtca tctctcaac cttt 766

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Met Lys Met Glu Asn Gly Met Tyr Lys Lys Lys Gly Val Cys Asp Ser
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Cys Val Ser Ser Lys Ser Arg Ser Asn His Ser Pro Lys Arg Ser Met
 20 25 30

Met Glu Pro Gln Pro His His Leu Leu Met Asp Trp Asn Lys Ala Asn
 35 40 45

Asp Leu Leu Thr Gln Glu His Ala Ala Phe Leu Asn Asp Pro His His
 50 55 60

Leu Met Leu Asp Pro Pro Pro Glu Thr Leu Ile His Leu Asp Glu Asp
 65 70 75 80

Glu Glu Tyr Asp Glu Asp Met Asp Ala Met Lys Glu Met Gln Tyr Met
 85 90 95

Ile Ala Val Met Gln Pro Val Asp Ile Asp Pro Ala Thr Val Pro Lys
 100 105 110

Pro Asn Arg Arg Asn Val Arg Ile Ser Asp Asp Pro Gln Thr Val Val
 115 120 125

Ala Arg Arg Arg Arg Glu Arg Ile Ser Glu Lys Ile Arg Ile Leu Lys
 130 135 140

Arg Ile Val Pro Gly Gly Ala Lys Met Asp Thr Ala Ser Met Leu Asp
145 150 155 160

Glu Ala Ile Arg Tyr Thr Lys Phe Leu Lys Arg Gln Val Arg Ile Leu
165 170 175

Gln Pro His Ser Gln Ile Gly Ala Pro Met Ala Asn Pro Ser Tyr Leu
180 185 190

Cys Tyr Tyr His Asn Ser Gln Pro
195 200

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cgagaagggt ttggagatag aatcttttgt tcttcttttg tccctccttg ctcgattttt 180

gttacgtgtg aagcaataaa aaaaaactga tatagctaaa tcttccatcc attcagaggg 240

ttctaaatct gatctgac atg gaa caa gtg ttt gct gat tgg aat ttt gaa 291
Met Glu Gln Val Phe Ala Asp Trp Asn Phe Glu
1 5 10

gat aat ttt cac atg tcc act aat aaa aga tca atc aga cca gaa gat 339
Asp Asn Phe His Met Ser Thr Asn Lys Arg Ser Ile Arg Pro Glu Asp
15 20 25

gaa tta gtg gag cta ttg tgg aga gat ggt caa gtg gtt tta caa agc 387
Glu Leu Val Glu Leu Leu Trp Arg Asp Gly Gln Val Val Leu Gln Ser
30 35 40

caa gct cgt aga gaa ccg tca gtc caa gtc caa acc cac aaa caa gaa 435
Gln Ala Arg Arg Glu Pro Ser Val Gln Val Gln Thr His Lys Gln Glu
45 50 55

acc cta aga aaa ccc aac aat att ttt ctt gac aac caa gaa aca gta 483
Thr Leu Arg Lys Pro Asn Asn Ile Phe Leu Asp Asn Gln Glu Thr Val
60 65 70 75

caa aag cct aac tac gct gct cta gat gat caa gaa acc gtc tcc tgg 531
Gln Lys Pro Asn Tyr Ala Ala Leu Asp Asp Gln Glu Thr Val Ser Trp
80 85 90

ata caa tac cct ccg gat gac gtc atc gac cct ttc gaa tcc gag ttc 579
Ile Gln Tyr Pro Pro Asp Asp Val Ile Asp Pro Phe Glu Ser Glu Phe
95 100 105

tcc tct cat ttc ttc tct tcg atc gat cac ctc gga ggt cct gag aag Ser Ser His Phe Phe Ser Ser Ile Asp His Leu Gly Gly Pro Glu Lys 110 115 120	627
cca cga acg atc gaa gag aca gtt aag cat gag gct caa gcc atg gct Pro Arg Thr Ile Glu Glu Thr Val Lys His Glu Ala Gln Ala Met Ala 125 130 135	675
cct cct aag ttt aga tcc tcg gtt ata aca gtc gga ccg agt cat tgc Pro Pro Lys Phe Arg Ser Ser Val Ile Thr Val Gly Pro Ser His Cys 140 145 150 155	723
ggc agc aac cag tca aca aat att cat cag gcc act aca ctt ccg gtt Gly Ser Asn Gln Ser Thr Asn Ile His Glu Ala Thr Thr Leu Pro Val 160 165 170	771
tct atg agt gat aga agc aag aac gtc gaa gaa aga ctt gac act tcg Ser Met Ser Asp Arg Ser Lys Asn Val Glu Glu Arg Leu Asp Thr Ser 175 180 185	819
tca ggt ggc tcc tcc ggt tgc agc tat gga agg aac aac aaa gaa acc Ser Gly Gly Ser Ser Gly Cys Ser Tyr Gly Arg Asn Asn Lys Glu Thr 190 195 200	867
gtt agt gga aca agt gta acc att gac cgt aaa aga aaa cat gtt atg Val Ser Gly Thr Ser Val Thr Ile Asp Arg Lys Arg Lys His Val Met 205 210 215	915
gat gct gat caa gaa tct gtg tct caa tca gat ata ggt ttg acc tca Asp Ala Asp Gln Glu Ser Val Ser Gln Ser Asp Ile Gly Leu Thr Ser 220 225 230 235	963
acc gat gat caa acc atg ggt aac aaa tcg agc caa ccg tca gga tct Thr Asp Asp Gln Thr Met Gly Asn Lys Ser Ser Gln Arg Ser Gly Ser 240 245 250	1011
act cga aga agc cgt gca gct gaa gtt cat aat ctc tca gaa agg agg Thr Arg Arg Ser Arg Ala Ala Glu Val His Asn Leu Ser Glu Arg Arg 255 260 265	1059
agg aga gat ccg atc aat gaa aga atg aaa gct ctt caa gaa ctc ata Arg Arg Asp Arg Ile Asn Glu Arg Met Lys Ala Leu Gln Glu Leu Ile 270 275 280	1107
cct cac tgc agc aga aca gat aaa gct tcg ata ttg gat gaa gca att Pro His Cys Ser Arg Thr Asp Lys Ala Ser Ile Leu Asp Glu Ala Ile 285 290 295	1155
gat tac tta aaa tca ctt caa atg caa ctc caa gtg atg tgg atg gga Asp Tyr Leu Lys Ser Leu Gln Met Gln Leu Gln Val Met Trp Met Gly 300 305 310 315	1203
agt gga atg gcg gcg gcg gca gca gca gca gca agt ccg atg atg ttt Ser Gly Met Ala Ala Ala Ala Ala Ala Ala Ser Pro Met Met Phe 320 325 330	1251
ccc ggg gta caa tca tct cca tac att aat cag atg gct atg caa agt	1299

Pro Gly Val Gln Ser Ser Pro Tyr Ile Asn Gln Met Ala Met Gln Ser
335 340 345

cag atg caa ttg tct caa ttc ccg gtt atg aac cgg tcc gct ccg cag 1347
Gln Met Gln Leu Ser Gln Phe Pro Val Met Asn Arg Ser Ala Pro Gln
350 355 360

aac cat ccc ggt tta gta tgt caa aac ccg gta cag ttg cag ctc caa 1395
Asn His Pro Gly Leu Val Cys Gln Asn Pro Val Gln Leu Gln Leu Gln
365 370 375

gca cag aac caa atc tta tgc gag cag ctc gct agg tac atg ggc ggg 1443
Ala Gln Asn Gln Ile Leu Ser Glu Gln Leu Ala Arg Tyr Met Gly Gly
380 385 390 395

att ccc cag atg ccg ccg gcg gga aat cag atg cag acc gtg caa caa 1491
Ile Pro Gln Met Pro Pro Ala Gly Asn Gln Met Gln Thr Val Gln Gln
400 405 410

caa cca gcg gac atg ttg gga ttt gga tct ccg gcg gga ccg caa agt 1539
Gln Pro Ala Asp Met Leu Gly Phe Gly Ser Pro Ala Gly Pro Gln Ser
415 420 425

caa ctg tgc gca ccg gcg acc acc gac agt ctt cat atg ggt aaa ata 1587
Gln Leu Ser Ala Pro Ala Thr Thr Asp Ser Leu His Met Gly Lys Ile
430 435 440

ggc tga cttggcatat agttttctc cgaaattatt cttcttacag ttggtgattg 1643
Gly

ttattttatt ttggtgcct aagcaagcat aaaagctaag tcaaatgtat tatagagatc 1703

taataagtta gtctcactat tataacttat ttttaaacag ttgaattata gtatcaatca 1763

agtgttggga acctaaagat catacatgtg tcaatacttt tatatttgtt ctcaagggttc 1823

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tttgggtcta tgaatatgaa cattaacccc 1913

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Ser Thr Asn Lys Arg Ser Ile Arg Pro Glu Asp Glu Leu Val Glu Leu
20 25 30

Leu Trp Arg Asp Gly Gln Val Val Leu Gln Ser Gln Ala Arg Arg Glu
35 40 45

Pro Ser Val Gln Val Gln Thr His Lys Gln Glu Thr Leu Arg Lys Pro

50

55

60

Asn Asn Ile Phe Leu Asp Asn Gln Glu Thr Val Gln Lys Pro Asn Tyr
65 70 75 80

Ala Ala Leu Asp Asp Gln Glu Thr Val Ser Trp Ile Gln Tyr Pro Pro
85 90 95

Asp Asp Val Ile Asp Pro Phe Glu Ser Glu Phe Ser Ser His Phe Phe
100 105 110

Ser Ser Ile Asp His Leu Gly Gly Pro Glu Lys Pro Arg Thr Ile Glu
115 120 125

Glu Thr Val Lys His Glu Ala Gln Ala Met Ala Pro Pro Lys Phe Arg
130 135 140

Ser Ser Val Ile Thr Val Gly Pro Ser His Cys Gly Ser Asn Gln Ser
145 150 155 160

Thr Asn Ile His Gln Ala Thr Thr Leu Pro Val Ser Met Ser Asp Arg
165 170 175

Ser Lys Asn Val Glu Glu Arg Leu Asp Thr Ser Ser Gly Gly Ser Ser
180 185 190

Gly Cys Ser Tyr Gly Arg Asn Asn Lys Glu Thr Val Ser Gly Thr Ser
195 200 205

Val Thr Ile Asp Arg Lys Arg Lys His Val Met Asp Ala Asp Gln Glu
210 215 220

Ser Val Ser Gln Ser Asp Ile Gly Leu Thr Ser Thr Asp Asp Gln Thr
225 230 235 240

Met Gly Asn Lys Ser Ser Gln Arg Ser Gly Ser Thr Arg Arg Ser Arg
245 250 255

Ala Ala Glu Val His Asn Leu Ser Glu Arg Arg Arg Asp Arg Ile
260 265 270

Asn Glu Arg Met Lys Ala Leu Gln Glu Leu Ile Pro His Cys Ser Arg
275 280 285

Thr Asp Lys Ala Ser Ile Leu Asp Glu Ala Ile Asp Tyr Leu Lys Ser
290 295 300

Leu Gln Met Gln Leu Gln Val Met Trp Met Gly Ser Gly Met Ala Ala
305 310 315 320

Ala Ala Ala Ala Ala Ala Ser Pro Met Met Phe Pro Gly Val Gln Ser
325 330 335

Ser Pro Tyr Ile Asn Gln Met Ala Met Gln Ser Gln Met Gln Leu Ser
340 345 350

Gln Phe Pro Val Met Asn Arg Ser Ala Pro Gln Asn His Pro Gly Leu
355 360 365

Val Cys Gln Asn Pro Val Gln Leu Gln Leu Gln Ala Gln Asn Gln Ile
370 375 380

Leu Ser Glu Gln Leu Ala Arg Tyr Met Gly Gly Ile Pro Gln Met Pro
385 390 395 400

Pro Ala Gly Asn Gln Met Gln Thr Val Gln Gln Gln Pro Ala Asp Met
405 410 415

Leu Gly Phe Gly Ser Pro Ala Gly Pro Gln Ser Gln Leu Ser Ala Pro
420 425 430

Ala Thr Thr Asp Ser Leu His Met Gly Lys Ile Gly
435 440

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cttcgatct ctctgatgc cgcgggaac attcaatttc cggggagtgc aacaaaaaaa 120
aaactctcgg tttttatatt tccccctttt tcaccgggtgg aagtttccgg ag atg gtg 178
Met Val
1
tca ccc gaa aac gct aat tgg att tgt gac ttg atc gat gct gat tac 226
Ser Pro Glu Asn Ala Asn Trp Ile Cys Asp Leu Ile Asp Ala Asp Tyr
5 10 15

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gga agt ttc aca atc caa ggt cct ggt ttc tct tgg cct gtt cag caa	274
Gly Ser Phe Thr Ile Gln Gly Pro Gly Phe Ser Trp Pro Val Gln Gln	
20 25 30	
cct att ggt gtt tct tct aac tcc agt gct gga gtt gat ggc tgc gct	322
Pro Ile Gly Val Ser Asn Ser Ser Ala Gly Val Asp Gly Ser Ala	
35 40 45 50	
gga aac tca gaa gct agc aaa gaa cct gga tcc aaa aag agg ggg aga	370
Gly Asn Ser Ser Ala Ser Lys Glu Pro Gly Ser Lys Lys Arg Gly Arg	
55 60 65	
tgt gaa tca tcc tct gcc act agc tgc aaa gca tgt aga gag aag cag	418
Cys Glu Ser Ser Ser Ala Thr Ser Ser Lys Ala Cys Arg Glu Lys Gln	
70 75 80	
cga cgg gac agg ttg aat gac aag ttt atg gaa ttg ggt gca att ttg	466
Arg Arg Asp Arg Leu Asn Asp Lys Phe Met Glu Leu Gly Ala Ile Leu	
85 90 95	
gag cct gga aat cct ccc aaa aca gac aag gct gct atc ttg gtt gat	514
Glu Pro Gly Asn Pro Pro Lys Thr Asp Lys Ala Ala Ile Leu Val Asp	
100 105 110	
gct gtc cgc atg gtg aca cag cta cgg ggc gag gcc cag aag ctg aag	562
Ala Val Arg Met Val Thr Gln Leu Arg Gly Glu Ala Gln Lys Leu Lys	
115 120 125 130	
gac tcc aat tca agt ctt cag gac aaa atc aaa gag tta aag act gag	610
Asp Ser Asn Ser Ser Leu Gln Asp Lys Ile Lys Glu Leu Lys Thr Glu	
135 140 145	
aaa aac gag ctg cga gat gag aaa cag agg ctg aag aca gag aaa gaa	658
Lys Asn Glu Leu Arg Asp Glu Lys Gln Arg Leu Lys Thr Glu Lys Glu	
150 155 160	
aag ctg gag cag cag ctg aaa gcc atg aat gct cct caa cca agt ttt	706
Lys Leu Glu Gln Gln Leu Lys Ala Met Asn Ala Pro Gln Pro Ser Phe	
165 170 175	
ttc cca gcc cca cct atg atg cct act gct ttt gct tca gcg caa gcc	754
Phe Pro Ala Pro Pro Met Met Pro Thr Ala Phe Ala Ser Ala Gln Gly	
180 185 190	
caa gct cct gga aac aag atg gtg cca atc atc agt tac cca gga gtt	802
Gln Ala Pro Gly Asn Lys Met Val Pro Ile Ile Ser Tyr Pro Gly Val	
195 200 205 210	
gcc atg tgg cag ttc atg cct cct gct tca gtc gat act tct cag gat	850
Ala Met Trp Gln Phe Met Pro Pro Ala Ser Val Asp Thr Ser Gln Asp	
215 220 225	
cat gtc ctt cgt cct cct gtt gct taa tcaagaaaaa tcatcaaccg	897
His Val Leu Arg Pro Pro Val Ala	
230	

gtttgcttct tgcttcgcgt taaaagaaaa gtctccattt gttttgctct cctctcttct 957
 tcggctttct tagctcttct cttttgcttt gtctgttat catcgtaact gttatctgtt 1017
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 aaatttaagt agagtttggc aaaaaaaaaa 1107

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Asp Tyr Gly Ser Phe Thr Ile Gln Gly Pro Gly Phe Ser Trp Pro Val
 20 25 30

Gln Gln Pro Ile Gly Val Ser Ser Asn Ser Ser Ala Gly Val Asp Gly
 35 40 45

Ser Ala Gly Asn Ser Glu Ala Ser Lys Glu Pro Gly Ser Lys Lys Arg
 50 55 60

Gly Arg Cys Glu Ser Ser Ser Ala Thr Ser Ser Lys Ala Cys Arg Glu
 65 70 75 80

Lys Gln Arg Arg Asp Arg Leu Asn Asp Lys Phe Met Glu Leu Gly Ala
 85 90 95

Ile Leu Glu Pro Gly Asn Pro Pro Lys Thr Asp Lys Ala Ala Ile Leu
 100 105 110

Val Asp Ala Val Arg Met Val Thr Gln Leu Arg Gly Glu Ala Gln Lys
 115 120 125

Leu Lys Asp Ser Asn Ser Ser Leu Gln Asp Lys Ile Lys Glu Leu Lys
 130 135 140

Thr Glu Lys Asn Glu Leu Arg Asp Glu Lys Gln Arg Leu Lys Thr Glu
 145 150 155 160

Lys Glu Lys Leu Glu Gln Gln Leu Lys Ala Met Asn Ala Pro Gln Pro
 165 170 175

Ser Phe Phe Pro Ala Pro Pro Met Met Pro Thr Ala Phe Ala Ser Ala
 180 185 190

Gln Gly Gln Ala Pro Gly Asn Lys Met Val Pro Ile Ile Ser Tyr Pro
195 200 205

Gly Val Ala Met Trp Gln Phe Met Pro Pro Ala Ser Val Asp Thr Ser
210 215 220

Gln Asp His Val Leu Arg Pro Pro Val Ala
225 230

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<222> (27)..(746) <223> G801

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Asn Gly Ile Ile Val Glu Gln Thr Ser Asn Lys Gly Pro Leu Asn Ala
10 15 20 25

gtt aag aaa cca ccg tct aaa gat cga cac agc aaa gtt gac gga aga 149
Val Lys Lys Pro Pro Ser Lys Asp Arg His Ser Lys Val Asp Gly Arg
30 35 40

gga aga agg att cgt atg cca atc att tgc gca gct cga gtt ttt caa 197
Gly Arg Arg Ile Arg Met Pro Ile Ile Cys Ala Ala Arg Val Phe Gln
45 50 55

ttg acc aga gag tta ggt cac aag tcc gat ggt caa acc ata gag tgg 245
Leu Thr Arg Glu Leu Gly His Lys Ser Asp Gly Gln Thr Ile Glu Trp
60 65 70

ctt ctc cgt caa gct gag cct tct atc ata gcc gcc act gga act ggc 293
Leu Leu Arg Gln Ala Glu Pro Ser Ile Ile Ala Ala Thr Gly Thr Gly
75 80 85

act act ccg gcg agt ttc tcc act gct tct ctc tcc act tct tct ccg 341
Thr Thr Pro Ala Ser Phe Ser Thr Ala Ser Leu Ser Thr Ser Ser Pro
90 95 100 105

ttt act ctc ggg aaa cgt gtc gtc aga gcg gag gaa gga gaa tcc ggc 389
Phe Thr Leu Gly Lys Arg Val Val Arg Ala Glu Glu Gly Glu Ser Gly
110 115 120

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Gly Gly Phe Trp Ala Val Pro Ala Arg Pro Asp Phe Gly Gln Val Trp
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Glu Ser His Asn Asn Asn Gln Ser Asn Asn Asn Thr Thr Gly Ser Ala
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His Leu Val Pro Ser Met Gly Pro Ile Ser Gly Ser Val Ser Leu Thr
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Thr Thr Ala Pro Asn Ser Thr Thr Thr Thr Val Thr Ala Ala Lys Thr	
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Pro Ala Lys Arg Pro Ser Lys Asp Arg His Ile Lys Val Asp Gly Arg	
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Gly Arg Arg Ile Arg Met Pro Ala Ile Cys Ala Ala Arg Val Phe Gln	
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Leu Thr Arg Glu Leu Gln His Lys Ser Asp Gly Glu Thr Ile Glu Trp	
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Leu Leu Gln Gln Ala Glu Pro Ala Ile Ile Ala Ala Thr Gly Thr Gly	
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Pro His His Ile Thr Thr Asp Ser Ser Ser Ser Ser Leu Pro Lys Thr	
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Phe Arg Glu Glu Asp Leu Phe Lys Asp Pro Asn Phe Leu Asp Gln Glu	
180 185 190	
ccc ggt tca aga tca cct aaa ccg gga tcc gaa gct cct gat caa gat	740
Pro Gly Ser Arg Ser Pro Lys Pro Gly Ser Glu Ala Pro Asp Gln Asp	
195 200 205	
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Pro Gly Ser Thr Arg Ser Arg Thr Gln Asn Met Ile Pro Pro Met Trp	
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Ala Leu Ala Pro Thr Pro Ala Ser Thr Asn Gly Gly Ser Ala Phe Trp	
230 235 240	
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Met Leu Pro Val Gly Gly Gly Gly Gly Pro Ala Asn Val Gln Asp Pro	
245 250 255	
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 Thr Pro Ala Lys Arg Pro Ser Lys Asp Arg His Ile Lys Val Asp Gly
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 Arg Gly Arg Arg Ile Arg Met Pro Ala Ile Cys Ala Ala Arg Val Phe
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 Trp Leu Leu Gln Gln Ala Glu Pro Ala Ile Ile Ala Ala Thr Gly Thr
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Gly Thr Ile Pro Ala Asn Ile Ser Thr Leu Asn Ile Ser Leu Arg Ser
115 120 125

Ser Gly Ser Thr Leu Ser Ala Pro Leu Ser Lys Ser Phe His Met Gly
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Arg Ala Ala Gln Asn Ala Ala Val Phe Gly Phe Gln Gln Gln Leu Tyr
145 150 155 160

His Pro His His Ile Thr Thr Asp Ser Ser Ser Ser Leu Pro Lys
165 170 175

Thr Phe Arg Glu Glu Asp Leu Phe Lys Asp Pro Asn Phe Leu Asp Gln
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Glu Pro Gly Ser Arg Ser Pro Lys Pro Gly Ser Glu Ala Pro Asp Gln
195 200 205

Asp Pro Gly Ser Thr Arg Ser Arg Thr Gln Asn Met Ile Pro Pro Met
210 215 220

Trp Ala Leu Ala Pro Thr Pro Ala Ser Thr Asn Gly Gly Ser Ala Phe
225 230 235 240

Trp Met Leu Pro Val Gly Gly Gly Gly Gly Pro Ala Asn Val Gln Asp
245 250 255

Pro Ser Gln His Met Trp Ala Phe Asn Pro Gly His Tyr Pro Gly Arg
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Ile Gly Ser Val Gln Leu Gly Ser Met Leu Val Gly Gly Gln Gln Leu
275 280 285

Gly Leu Gly Val Ala Glu Asn Asn Asn Leu Gly Leu Phe Ser Gly Gly
290 295 300

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Ser Glu Pro Asn Ser Glu Pro Lys Lys Pro Pro Lys Arg Thr Ser
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Thr Lys Asp Arg His Thr Lys Val Glu Gly Arg Gly Arg Ile Arg
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atg cct gcc atg tgt gct gca cgt gtc ttt cag ctc aca cgt gag ctt 355
Met Pro Ala Met Cys Ala Ala Arg Val Phe Gln Leu Thr Arg Glu Leu
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ggc cac aaa tcc gac ggt gaa act att gag tgg cta ctc caa caa gca 403
Gly His Lys Ser Asp Gly Glu Thr Ile Glu Trp Leu Leu Gln Gln Ala
85 90 95

gaa cca gcg gtt ata gcc gct aca ggg act gga acc att ccg gct aac 451
Glu Pro Ala Val Ile Ala Ala Thr Gly Thr Ile Pro Ala Asn
100 105 110 115

ttc act tct tta aac atc tca ctt cgt agc tca aga tct tct ctc tct 499
Phe Thr Ser Leu Asn Ile Ser Leu Arg Ser Ser Arg Ser Ser Leu Ser
120 125 130

gct gct cat ctt cgt aca act cct agt agc tat tac ttt cat tca cca 547
Ala Ala His Leu Arg Thr Thr Pro Ser Ser Tyr Tyr Phe His Ser Pro
135 140 145

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His Gln Ser Met Thr His His Leu Gln His Gln His Gln Val Arg Pro
150 155 160

aag aac gag tca cat tct tcg tct tct tct tct tca cag ctt tta gat 643
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165 170 175

cac aac caa atg ggt aac tat cta gta caa tca act gct gga tct tta 691
 His Asn Gln Met Gly Asn Tyr Leu Val Gln Ser Thr Ala Gly Ser Leu
 180 185 190 195

cct acg agt cag agt cct gca acg gca cgg ttt tgg agt agt ggt gac 739
 Pro Thr Ser Gln Ser Pro Ala Thr Ala Pro Phe Trp Ser Ser Gly Asp
 200 205 210

aac aca cag aat ctt tgg gct ttt aat att aat cct cat cat tcc ggt 787
 Asn Thr Gln Asn Leu Trp Ala Phe Asn Ile Asn Pro His Ser Gly
 215 220 225

gtt gtc gcc gga gat gtt tac aac ccc aac agt ggt ggt agt ggc ggc 835
 Val Val Ala Gly Asp Val Tyr Asn Pro Asn Ser Gly Ser Gly Gly
 230 235 240

ggt agt gga gtt cat ttg atg aat ttt gca gct cct att gct ttg ttt 883
 Gly Ser Gly Val His Leu Met Asn Phe Ala Ala Pro Ile Ala Leu Phe
 245 250 255

tct gga cag cct ttg gct tct ggt tat gga gga gga gga ggt ggc ggt 931
 Ser Gly Gln Pro Leu Ala Ser Gly Tyr Gly Gly Gly Gly Gly Gly
 260 265 270

gga gaa cat agc cat tat gga gtt tta gcg gcg ttg aat gct gct tac 979
 Gly Glu His Ser His Tyr Gly Val Leu Ala Ala Leu Asn Ala Ala Tyr
 280 285 290

cga ccg gtg gcg gag acg ggg aac cat aac aac aac cag caa aac cgt 1027
 Arg Pro Val Ala Glu Thr Gly Asn His Asn Asn Asn Gln Gln Asn Arg
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gac gga gat cat cat cac aac cat caa gaa gat gga agc acc agt cat 1075
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 His Ser
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Arg Thr Ser Thr Lys Asp Arg His Thr Lys Val Glu Gly Arg Gly Arg
50 55 60

Arg Ile Arg Met Pro Ala Met Cys Ala Ala Arg Val Phe Gln Leu Thr
65 70 75 80

Arg Glu Leu Gly His Lys Ser Asp Gly Glu Thr Ile Glu Trp Leu Leu
85 90 95

Gln Gln Ala Glu Pro Ala Val Ile Ala Ala Thr Gly Thr Gly Thr Ile
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Pro Ala Asn Phe Thr Ser Leu Asn Ile Ser Leu Arg Ser Ser Arg Ser
115 120 125

Ser Leu Ser Ala Ala His Leu Arg Thr Thr Pro Ser Ser Tyr Tyr Phe
130 135 140

His Ser Pro His Gln Ser Met Thr His His Leu Gln His Gln His Gln
145 150 155 160

Val Arg Pro Lys Asn Glu Ser His Ser Ser Ser Ser Ser Ser Gln
165 170 175

Leu Leu Asp His Asn Gln Met Gly Asn Tyr Leu Val Gln Ser Thr Ala
180 185 190

Gly Ser Leu Pro Thr Ser Gln Ser Pro Ala Thr Ala Pro Phe Trp Ser
195 200 205

Ser Gly Asp Asn Thr Gln Asn Leu Trp Ala Phe Asn Ile Asn Pro His
210 215 220

His Ser Gly Val Val Ala Gly Asp Val Tyr Asn Pro Asn Ser Gly Gly
225 230 235 240

Ser Gly Gly Gly Ser Gly Val His Leu Met Asn Phe Ala Ala Pro Ile
245 250 255

Ala Leu Phe Ser Gly Gln Pro Leu Ala Ser Gly Tyr Gly Gly Gly Gly
260 265 270

Gly Gly Gly Gly Glu His Ser His Tyr Gly Val Leu Ala Ala Leu Asn
275 280 285

Ala Ala Tyr Arg Pro Val Ala Glu Thr Gly Asn His Asn Asn Asn Gln
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Met Met Asn Pro Phe Leu Pro Glu Gly Cys Asp Pro Pro Pro Pro
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cca caa cca atg gag ggt tta cac gaa aat gct cca cct cca ttt ctg 157
Pro Gln Pro Met Glu Gly Leu His Glu Asn Ala Pro Pro Pro Phe Leu
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acc aag aca ttt gag atg gtg gat gat cca aac act gac cac atc gta 205
Thr Lys Thr Phe Glu Met Val Asp Asp Pro Asn Thr Asp His Ile Val
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Ser Trp Asn Arg Gly Gly Thr Ser Phe Val Val Trp Asp Leu His Ser
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Phe Ser Thr Ile Leu Leu Pro Arg His Phe Lys His Ser Asn Phe Ser
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agt ttc atc aga caa ctc aat act tat ggt ttc aga aag ata gaa gca 349
Ser Phe Ile Arg Gln Leu Asn Thr Tyr Gly Phe Arg Lys Ile Glu Ala
80 85 90 95

gag aga tgg gaa ttt gca aac gaa gag ttt ttg tta gga caa aga cag 397
Glu Arg Trp Glu Phe Ala Asn Glu Glu Phe Leu Leu Gly Gln Arg Gln
100 105 110

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Leu Leu Lys Asn Ile Lys Arg Arg Asn Pro Phe Thr Pro Ser Ser Ser
115 120 125

cca agc cat gac gct tgc aac gag ctt cgc aga gag aag caa gtg cta 493

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Met	Met	Glu	Ile	Val	Ser	Leu	Arg	Gln	Gln	Gln	Gln	Thr	Thr	Lys	Ser		
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Tyr	Ile	Lys	Ala	Met	Glu	Gln	Arg	Ile	Glu	Gly	Thr	Glu	Arg	Lys	Gln		
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Arg	Gln	Met	Met	Ser	Phe	Leu	Ala	Arg	Ala	Met	Gln	Ser	Pro	Ser	Phe		
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Leu	His	Gln	Leu	Leu	Lys	Gln	Arg	Asp	Lys	Lys	Ile	Lys	Glu	Leu	Glu		
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Asp	Asn	Glu	Ser	Ala	Lys	Arg	Lys	Arg	Gly	Ser	Ser	Ser	Met	Ser	Glu		
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ttg	gaa	gtt	ttg	gct	ttg	gag	atg	caa	ggg	cat	gga	aaa	cag	agg	aat		781
Leu	Glu	Val	Leu	Ala	Leu	Glu	Met	Gln	Gly	His	Gly	Lys	Gln	Arg	Asn		
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atg	ttg	gaa	gaa	gag	gat	cat	caa	ctg	gtg	gta	gag	aga	gag	ttg	gat		829
Met	Leu	Glu	Glu	Glu	Asp	His	Gln	Leu	Val	Val	Glu	Arg	Glu	Leu	Asp		
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gat	ggg	ttc	tgg	gaa	gag	ttg	ctt	agt	gat	gag	agt	ttg	gct	tcc	acc		877
Asp	Gly	Phe	Trp	Glu	Glu	Leu	Leu	Ser	Asp	Glu	Ser	Leu	Ala	Ser	Thr		
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Ser																	
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Lys	Thr	Phe	Glu	Met	Val	Asp	Asp	Pro	Asn	Thr	Asp	His	Ile	Val	Ser	
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Trp	Asn	Arg	Gly	Gly	Thr	Ser	Phe	Val	Val	Trp	Asp	Leu	His	Ser	Phe	
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Ser Thr Ile Leu Leu Pro Arg His Phe Lys His Ser Asn Phe Ser Ser
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Phe Ile Arg Gln Leu Asn Thr Tyr Gly Phe Arg Lys Ile Glu Ala Glu
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Arg Trp Glu Phe Ala Asn Glu Glu Phe Leu Leu Gly Gln Arg Gln Leu
100 105 110

Leu Lys Asn Ile Lys Arg Arg Asn Pro Phe Thr Pro Ser Ser Ser Pro
115 120 125

Ser His Asp Ala Cys Asn Glu Leu Arg Arg Glu Lys Gln Val Leu Met
130 135 140

Met Glu Ile Val Ser Leu Arg Gln Gln Gln Gln Thr Thr Lys Ser Tyr
145 150 155 160

Ile Lys Ala Met Glu Gln Arg Ile Glu Gly Thr Glu Arg Lys Gln Arg
165 170 175

Gln Met Met Ser Phe Leu Ala Arg Ala Met Gln Ser Pro Ser Phe Leu
180 185 190

His Gln Leu Leu Lys Gln Arg Asp Lys Lys Ile Lys Glu Leu Glu Asp
195 200 205

Asn Glu Ser Ala Lys Arg Lys Arg Gly Ser Ser Ser Met Ser Glu Leu
210 215 220

Glu Val Leu Ala Leu Glu Met Gln Gly His Gly Lys Gln Arg Asn Met
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Gly Phe Trp Glu Glu Leu Leu Ser Asp Glu Ser Leu Ala Ser Thr Ser
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gaaactggtg gctgatagtg atatgcatat ttgagag atg gtg ttc aag aga aag      235
                    Met Val Phe Lys Arg Lys
                    1                    5

tta gat tgc ctt tcc gtg gga ttt gat ttt ccc aac att ccc aga gct      283
Leu Asp Cys Leu Ser Val Gly Phe Asp Phe Pro Asn Ile Pro Arg Ala
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cct cgt tca tgc agg agg aag gtt cta aac aag agg att gat cat gat      331
Pro Arg Ser Cys Arg Arg Lys Val Leu Asn Lys Arg Ile Asp His Asp
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gat gat aac act cag atc tgt gca att gac tta cta gct ttg gct gga      379
Asp Asp Asn Thr Gln Ile Cys Ala Ile Asp Leu Leu Ala Leu Ala Gly
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aag att cta cag gaa agc gag agt tcc tct gcg tct tct aat gca ttt      427
Lys Ile Leu Gln Glu Ser Glu Ser Ser Ser Ala Ser Ser Asn Ala Phe
                    55                    60                    65                    70

gaa gaa att aag caa gag aaa gta gaa aat tgc aag act att aaa tct      475
Glu Glu Ile Lys Gln Glu Lys Val Glu Asn Cys Lys Thr Ile Lys Ser
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gag tct tct gac caa gga aac tct gtg tca aag cct act tat gat atc      523
Glu Ser Ser Asp Gln Gly Asn Ser Val Ser Lys Pro Thr Tyr Asp Ile
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tct act gag aag tgt gtg gta aac agt tgt ttt tca ttt ccg gat agt      571
Ser Thr Glu Lys Cys Val Val Asn Ser Cys Phe Ser Phe Pro Asp Ser
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Asp Gly Val Leu Glu Arg Thr Pro Met Ser Asp Tyr Lys Lys Ile His
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Gly Leu Met Asp Val Gly Cys Glu Asn Lys Asn Val Asn Asn Gly Phe
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Glu Gln Gly Glu Ala Thr Asp Arg Val Gly Asp Gly Gly Leu Val Thr
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gat act tgc aac tta gag gat gca act gcg tta ggt ctg cag ttt ccg      763
Asp Thr Cys Asn Leu Glu Asp Ala Thr Ala Leu Gly Leu Gln Phe Pro
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Gly Arg Lys Asp Asp Asp Glu Lys Phe Tyr Ser Tyr His Lys Leu Ser	
215 220 225 230	
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265 270 275	
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Cys Tyr Gly Tyr Asn Ala Trp Gln Arg Glu Ile Ile Tyr Lys Arg Arg	
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Arg Ser Pro Asp Arg Ser Ser Val Val Thr Ser Asp Gly Gly Leu Ser	
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Ser Gly Ser Val Ser Lys Leu Pro Lys Lys Gly Asp Thr Val Lys Leu	
315 320 325	
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Ser Ile Lys Ser Phe Arg Ile Pro Glu Leu Phe Ile Glu Val Pro Glu	
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Thr Ala Thr Val Gly Ser Leu Lys Arg Thr Val Met Glu Ala Val Ser	
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Val Leu Leu Ser Gly Gly Ile Arg Val Gly Val Leu Met His Gly Lys	
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Lys Val Arg Asp Glu Arg Lys Thr Leu Ser Gln Thr Gly Ile Ser Cys	
375 380 385 390	
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Asp Glu Asn Leu Asp Asn Leu Gly Phe Thr Leu Glu Pro Ser Pro Ser	
395 400 405	
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Lys Val Pro Leu Pro Leu Cys Ser Glu Asp Pro Ala Val Pro Thr Asp	

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	Pro Thr Ser Leu Ser Glu Arg Ser Ala Ala Ser Pro Met Leu Asp Ser			
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	gga att cca cat gca gat gac gtg att gat tca aga aat att gtg gac			1579
	Gly Ile Pro His Ala Asp Val Ile Asp Ser Arg Asn Ile Val Asp			
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	Ser Asn Leu Glu Leu Val Pro Tyr Gln Gly Asp Ile Ser Val Asp Glu			
	455	460	465	470
	cct tca tca gat tca aaa gag ctt gtc cca ctt cca gag ttg gaa gtc			1675
	Pro Ser Ser Asp Ser Lys Glu Leu Val Pro Leu Pro Glu Leu Glu Val			
	475	480	485	
	aag gcg ctt gcc ata gtt ccg ttg aac cag aaa cct aag cgt act gag			1723
	Lys Ala Leu Ala Ile Val Pro Leu Asn Gln Lys Pro Lys Arg Thr Glu			
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	cta gcc cag agg aga act agg aga ccc ttc tct gtg aca gag gta gaa			1771
	Leu Ala Gln Arg Arg Thr Arg Pro Phe Ser Val Thr Glu Val Glu			
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	gct ctt gta caa gca gtt gag gaa ctc ggg act gga aga tgg cgt gat			1819
	Ala Leu Val Gln Ala Val Glu Glu Leu Gly Thr Arg Trp Arg Asp			
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	Val Lys Leu Arg Ala Phe Glu Asp Ala Asp His Arg Thr Tyr Val Asp			
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	Gln Gln Arg Arg Gly Glu Pro Val Pro Gln Glu Leu Leu Asp Arg Val			
	570	575	580	
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	Arg Gly Ala Ser Lys Asp Pro Asp Met Asn Arg Gly Gly Ala Phe Glu			
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	Ser Gly Val Ser Val			
	615			
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Leu Leu Ala Leu Ala Gly Lys Ile Leu Gln Glu Ser Glu Ser Ser Ser
50 55 60

Ala Ser Ser Asn Ala Phe Glu Glu Ile Lys Gln Glu Lys Val Glu Asn
65 70 75 80

Cys Lys Thr Ile Lys Ser Glu Ser Ser Asp Gln Gly Asn Ser Val Ser
85 90 95

Lys Pro Thr Tyr Asp Ile Ser Thr Glu Lys Cys Val Val Asn Ser Cys
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Phe Ser Phe Pro Asp Ser Asp Gly Val Leu Glu Arg Thr Pro Met Ser
115 120 125

Asp Tyr Lys Lys Ile His Gly Leu Met Asp Val Gly Cys Glu Asn Lys
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145 150 155 160

Asp Gly Gly Leu Val Thr Asp Thr Cys Asn Leu Glu Asp Ala Thr Ala
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Leu Gly Leu Gln Phe Pro Lys Ser Val Cys Val Gly Gly Asp Leu Lys
180 185 190

Ser Pro Ser Thr Leu Asp Met Thr Pro Asn Gly Ser Tyr Ala Arg His
195 200 205

Gly Asn His Thr Asn Leu Gly Arg Lys Asp Asp Asp Glu Lys Phe Tyr

210

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Ser Tyr His Lys Leu Ser Asn Lys Phe Lys Ser Tyr Arg Ser Pro Thr
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Tyr Arg Lys Arg Lys Ser Cys Tyr Gly Tyr Asn Ala Trp Gln Arg Glu
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Ser Asp Gly Gly Leu Ser Ser Gly Ser Val Ser Lys Leu Pro Lys Lys
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Phe Ile Glu Val Pro Glu Thr Ala Thr Val Gly Ser Leu Lys Arg Thr
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Val Met Glu Ala Val Ser Val Leu Leu Ser Gly Gly Ile Arg Val Gly
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Val Leu Met His Gly Lys Lys Val Arg Asp Glu Arg Lys Thr Leu Ser
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Gln Thr Gly Ile Ser Cys Asp Glu Asn Leu Asp Asn Leu Gly Phe Thr
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Glu Leu Leu Asp Arg Val Leu Arg Ala Tyr Gly Tyr Trp Ser Gln His
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Glu	Val	Ser	Ile	Thr	Leu	Pro	Thr	Asp	Gln	Ser	Pro	Gln	Thr	Ser	Pro	
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Gly	Ser	Ser	Ser	Ser	Pro	Ser	Pro	Arg	Pro	Ser	Gly	Gly	Ser	Pro	Ala	
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Arg	Arg	Thr	Ala	Thr	Gly	Leu	Ser	Gly	Lys	His	Ser	Ile	Phe	Arg	Gly	
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Ile	Arg	Leu	Arg	Asn	Gly	Lys	Trp	Val	Ser	Glu	Ile	Arg	Glu	Pro	Arg	
				70			75					80				
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Lys	Thr	Thr	Arg	Ile	Trp	Leu	Gly	Thr	Tyr	Pro	Val	Pro	Glu	Met	Ala	
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Ala	Ala	Ala	Tyr	Asp	Val	Ala	Ala	Leu	Ala	Leu	Lys	Gly	Pro	Asp	Ala	
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Asn	Ser	Ala	Ala	Asp	Ile	Arg	Ala	Ala	Ala	Ser	Arg	Ala	Ala	Glu	Met	
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aag	caa	cgc	gat	cag	ggg	gat	gag	aag	gta	ttg	gaa	cgc	gtt	caa		596
Lys	Gln	Pro	Asp	Gln	Gly	Gly	Asp	Glu	Lys	Val	Leu	Glu	Pro	Val	Gln	
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Pro	Gly	Lys	Glu	Glu	Glu	Leu	Glu	Glu	Val	Ser	Cys	Asn	Ser	Cys	Ser	
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Leu	Glu	Phe	Met	Asp	Glu	Glu	Ala	Met	Leu	Asn	Met	Pro	Thr	Leu	Leu	
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Thr	Glu	Met	Ala	Glu	Gly	Met	Leu	Met	Ser	Pro	Pro	Arg	Met	Met	Ile	
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cat	cgc	acg	atg	gaa	gat	gat	tcg	cgc	gag	aat	cat	gaa	gga	gat	aat	788
His	Pro	Thr	Met	Glu	Asp	Asp	Ser	Pro	Glu	Asn	His	Glu	Gly	Asp	Asn	
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ctt	tgg	agt	tat	aaa	tga	atccattgaa	gctgctctct	ttttttattgt								836
Leu	Trp	Ser	Tyr	Lys												

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35 40 45

Ser Pro Ala Arg Arg Thr Ala Thr Gly Leu Ser Gly Lys His Ser Ile
50 55 60

Phe Arg Gly Ile Arg Leu Arg Asn Gly Lys Trp Val Ser Glu Ile Arg
65 70 75 80

Glu Pro Arg Lys Thr Thr Arg Ile Trp Leu Gly Thr Tyr Pro Val Pro
85 90 95

Glu Met Ala Ala Ala Tyr Asp Val Ala Ala Leu Ala Leu Lys Gly
100 105 110

Pro Asp Ala Val Leu Asn Phe Pro Gly Leu Ala Leu Thr Tyr Val Ala
115 120 125

Pro Val Ser Asn Ser Ala Ala Asp Ile Arg Ala Ala Ala Ser Arg Ala
130 135 140

Ala Glu Met Lys Gln Pro Asp Gln Gly Gly Asp Glu Lys Val Leu Glu
145 150 155 160

Pro Val Gln Pro Gly Lys Glu Glu Glu Leu Glu Glu Val Ser Cys Asn
165 170 175

Ser Cys Ser Leu Glu Phe Met Asp Glu Glu Ala Met Leu Asn Met Pro
180 185 190

Thr Leu Leu Thr Glu Met Ala Glu Gly Met Leu Met Ser Pro Pro Arg
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Met
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Asp Gln Tyr Ser Ser Ser Leu Val Asp Thr Ser Leu Asp Leu Thr Ile 15
5 10

ggc gtt act cgt atg cga gtt gaa gaa gat cca ccg aca agt gct ttg 214
Gly Val Thr Arg Met Arg Val Glu Glu Asp Pro Pro Thr Ser Ala Leu 30
20 25

gtg gaa gaa tta aac cga gtt agt gct gag aac aag aag ctc tcg gag 262
Val Glu Glu Leu Asn Arg Val Ser Ala Glu Asn Lys Lys Leu Ser Glu 45
35 40

atg cta act ttg atg tgt gac aac tac aac gtc ttg agg aag caa ctt 310
Met Leu Thr Leu Met Cys Asp Asn Tyr Asn Val Leu Arg Lys Gln Leu 65
50 55 60

atg gaa tat gtt aac aag agc aac ata acc gag agg gat caa atc agc 358
Met Glu Tyr Val Asn Lys Ser Asn Ile Thr Glu Arg Asp Gln Ile Ser 80
70 75

cct ccc aag aaa cgc aaa tcc ccg gcg aga gag gac gca ttc agc tgc 406
Pro Pro Lys Lys Arg Lys Ser Pro Ala Arg Glu Asp Ala Phe Ser Cys 95
85 90

gcg gtt att ggc gga gtg tcg gag agt agc tca acg gat caa gat gag 454
Ala Val Ile Gly Gly Val Ser Glu Ser Ser Ser Thr Val Lys Glu Asp Glu 110
100 105

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Tyr Leu Cys Lys Lys Gln Arg Glu Glu Thr Val Val Lys Glu Lys Val 125
115 120

tca agg gtc tat tac aag acc gaa gct tct gac act acc ctc gtt gtg 550
Ser Arg Val Tyr Tyr Lys Thr Glu Ala Ser Asp Thr Thr Leu Val Val 145
130 135 140 145

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Asn	Pro	Ser	Pro	Arg	Ala	Tyr	Phe	Lys	Cys	Ala	Cys	Ala	Pro	Ser	Cys	
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tct	gtc	aaa	aag	aag	ggt	cag	aga	agt	gtg	gag	gat	cag	tcc	gtg	tta	694
Ser	Val	Lys	Lys	Lys	Val	Gln	Arg	Ser	Val	Glu	Asp	Gln	Ser	Val	Leu	
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Val	Ala	Thr	Tyr	Glu	Gly	Glu	His	Asn	His	Pro	Met	Pro	Ser	Gln	Ile	
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Asp	Ser	Asn	Asn	Gly	Leu	Asn	Arg	His	Ile	Ser	His	Gly	Gly	Ser	Ala	
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Ser	Thr	Pro	Val	Ala	Ala	Asn	Arg	Arg	Ser	Ser	Ser	Leu	Thr	Val	Pro	Val
				230					235					240		
act	acc	gta	gat	atg	att	gaa	tcg	aag	aaa	gtg	acg	agc	cca	acg	tca	886
Thr	Thr	Val	Asp	Met	Ile	Glu	Ser	Lys	Lys	Val	Thr	Ser	Pro	Thr	Ser	
			245					250					255			
aga	atc	gat	ttt	ccc	caa	ggt	cag	aaa	ctt	ttg	gtg	gag	caa	atg	gct	934
Arg	Ile	Asp	Phe	Pro	Gln	Val	Gln	Lys	Leu	Leu	Val	Glu	Gln	Met	Ala	
			260				265					270				
tct	tcc	tta	acc	aaa	gat	cct	aac	ttt	aca	gca	gct	tta	gca	gca	gct	982
Ser	Ser	Leu	Thr	Lys	Asp	Pro	Asn	Phe	Thr	Ala	Ala	Leu	Ala	Ala	Ala	
			275			280					285					
ggt	acc	gga	aaa	ttg	tat	caa	cag	aat	cat	acc	gag	aaa	tag			1024
Val	Thr	Gly	Lys	Leu	Tyr	Gln	Gln	Asn	His	Thr	Glu	Lys				
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Leu	Val	Glu	Glu	Leu	Asn	Arg	Val	Ser	Ala	Glu	Asn	Lys	Lys	Leu	Ser	
			35					40				45				

Glu Met Leu Thr Leu Met Cys Asp Asn Tyr Asn Val Leu Arg Lys Gln
50 55 60

Leu Met Glu Tyr Val Asn Lys Ser Asn Ile Thr Glu Arg Asp Gln Ile
65 70 75 80

Ser Pro Pro Lys Lys Arg Lys Ser Pro Ala Arg Glu Asp Ala Phe Ser
85 90 95

Cys Ala Val Ile Gly Gly Val Ser Glu Ser Ser Ser Thr Asp Gln Asp
100 105 110

Glu Tyr Leu Cys Lys Lys Gln Arg Glu Glu Thr Val Val Lys Glu Lys
115 120 125

Val Ser Arg Val Tyr Tyr Lys Thr Glu Ala Ser Asp Thr Thr Leu Val
130 135 140

Val Lys Asp Gly Tyr Gln Trp Arg Lys Tyr Gly Gln Lys Val Thr Arg
145 150 155 160

Asp Asn Pro Ser Pro Arg Ala Tyr Phe Lys Cys Ala Cys Ala Pro Ser
165 170 175

Cys Ser Val Lys Lys Lys Val Gln Arg Ser Val Glu Asp Gln Ser Val
180 185 190

Leu Val Ala Thr Tyr Glu Gly Glu His Asn His Pro Met Pro Ser Gln
195 200 205

Ile Asp Ser Asn Asn Gly Leu Asn Arg His Ile Ser His Gly Gly Ser
210 215 220

Ala Ser Thr Pro Val Ala Ala Asn Arg Arg Ser Ser Leu Thr Val Pro
225 230 235 240

Val Thr Thr Val Asp Met Ile Glu Ser Lys Lys Val Thr Ser Pro Thr
245 250 255

Ser Arg Ile Asp Phe Pro Gln Val Gln Lys Leu Leu Val Glu Gln Met
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Val Cys Ser Ser Ala Pro Phe Thr Glu Gly His Met Cys Ser Asp
15 20 25 30

tcg cat acg gct ttg tgc gat gat ctg agt agt gat gag gaa atg gaa 146
Ser His Thr Ala Leu Cys Asp Asp Leu Ser Ser Asp Glu Glu Met Glu
35 40 45

ata gag gag ctt gag aag aag atc tgg aga gac aag cag cgt tta aag 194
Ile Glu Glu Leu Glu Lys Lys Ile Trp Arg Asp Lys Gln Arg Leu Lys
50 55 60

cgg ctg aag gaa atg gcg aag aac ggt cta gga aca aga ttg ttg ttg 242
Arg Leu Lys Glu Met Ala Lys Asn Gly Leu Gly Thr Arg Leu Leu Leu
65 70 75

aag cag caa cat gat gat ttt cca gag cac tct agt aag aga acc atg 290
Lys Gln Gln His Asp Asp Phe Pro Glu His Ser Ser Lys Arg Thr Met
80 85 90

tac aag gca caa gat ggg atc ttg aag tac atg tcg aag aca atg gag 338
Tyr Lys Ala Gln Asp Gly Ile Leu Lys Tyr Met Ser Lys Thr Met Glu
95 100 105 110

cga tat aaa gct caa ggt ttt gtt tat ggg att gtg tta gag aat ggg 386
Arg Tyr Lys Ala Gln Gly Phe Val Tyr Gly Ile Val Leu Glu Asn Gly
115 120 125

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Lys Thr Val Ala Gly Ser Ser Asp Asn Leu Arg Glu Trp Trp Lys Asp
130 135 140

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Lys Val Arg Phe Asp Arg Asn Gly Pro Ala Ala Ile Ile Lys His Gln
145 150 155

agg gat atc aat ctt tct gat gga agt gat tca ggg tct gag gtt ggg 530
Arg Asp Ile Asn Leu Ser Asp Gly Ser Asp Ser Gly Ser Glu Val Gly
160 165 170

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Phe Pro Leu Glu Lys Gly Val Thr Pro Pro Trp Trp Pro Thr Gly Lys	
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Glu Asp Trp Trp Asp Gln Leu Ser Leu Pro Val Asp Phe Arg Gly Val	
225 230 235	
ccg cca cct tac aag aag cct cat gat ctc aag aag ctg tgg aaa att	770
Pro Pro Pro Tyr Lys Lys Pro His Asp Leu Lys Lys Leu Trp Lys Ile	
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Gly Val Leu Ile Gly Val Ile Arg His Met Ala Ser Asp Ile Ser Asn	
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Ile Pro Asn Leu Val Arg Arg Ser Arg Ser Leu Gln Glu Lys Met Thr	
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Ser Arg Glu Gly Ala Leu Trp Leu Ala Ala Leu Tyr Arg Glu Lys Ala	
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Ser Thr Asp Tyr Asp Val Glu Leu Ile Gly Gly Thr His Arg Thr Asn	
335 340 345	
cag cag tat cct gaa ttt gaa aac aac tac aac tgt gtt tac aag aga	1106
Gln Gln Tyr Pro Glu Phe Glu Asn Asn Tyr Asn Cys Val Tyr Lys Arg	
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Lys Phe Glu Glu Asp Phe Gly Met Pro Met His Pro Thr Leu Leu Thr	
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Cys Glu Asn Ser Leu Cys Pro Tyr Ser Gln Pro His Met Gly Phe Leu	
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Glu Leu Glu Lys Lys Ile Trp Arg Asp Lys Gln Arg Leu Lys Arg Leu 50 55 60			
Lys Glu Met Ala Lys Asn Gly Leu Gly Thr Arg Leu Leu Leu Lys Gln 65 70 75 80			

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Ala Gln Asp Gly Ile Leu Lys Tyr Met Ser Lys Thr Met Glu Arg Tyr
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Lys Ala Gln Gly Phe Val Tyr Gly Ile Val Leu Glu Asn Gly Lys Thr
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Val Ala Gly Ser Ser Asp Asn Leu Arg Glu Trp Trp Lys Asp Lys Val
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Arg Phe Asp Arg Asn Gly Pro Ala Ala Ile Ile Lys His Gln Arg Asp
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Ile Asn Leu Ser Asp Gly Ser Asp Ser Gly Ser Glu Val Gly Asp Ser
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Leu Ser Ala Leu Phe Pro His Cys Asn Pro Pro Gln Arg Arg Phe Pro
 195 200 205

Leu Glu Lys Gly Val Thr Pro Pro Trp Trp Pro Thr Gly Lys Glu Asp
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Trp Trp Asp Gln Leu Ser Leu Pro Val Asp Phe Arg Gly Val Pro Pro
 225 230 235 240

Pro Tyr Lys Lys Pro His Asp Leu Lys Lys Leu Trp Lys Ile Gly Val
 245 250 255

Leu Ile Gly Val Ile Arg His Met Ala Ser Asp Ile Ser Asn Ile Pro
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Asn Leu Val Arg Arg Ser Arg Ser Leu Gln Glu Lys Met Thr Ser Arg
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Glu Gly Ala Leu Trp Leu Ala Ala Leu Tyr Arg Glu Lys Ala Ile Val
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Asp Gln Ile Ala Met Ser Arg Glu Asn Asn Asn Thr Ser Asn Phe Leu
 305 310 315 320

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 325 330 335

Asp Tyr Asp Val Glu Leu Ile Gly Gly Thr His Arg Thr Asn Gln Gln
 340 345 350

Tyr Pro Glu Phe Glu Asn Asn Tyr Asn Cys Val Tyr Lys Arg Lys Phe
 355 360 365

Glu Glu Asp Phe Gly Met Pro Met His Pro Thr Leu Leu Thr Cys Glu
 370 375 380

Asn Ser Leu Cys Pro Tyr Ser Gln Pro His Met Gly Phe Leu Asp Arg
 385 390 395 400

Asn Leu Arg Glu Asn His Gln Met Thr Cys Pro Tyr Lys Val Thr Ser
 405 410 415

Phe Tyr Gln Pro Thr Lys Pro Tyr Gly Met Thr Gly Leu Met Val Pro
 420 425 430

Cys Pro Asp Tyr Asn Gly Met Gln Gln Gln Val Gln Ser Phe Gln Asp
 435 440 445

Gln Phe Asn His Pro Asn Asp Leu Tyr Arg Pro Lys Ala Pro Gln Arg
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Gly Asn Asp Asp Leu Val Glu Asp Leu Asn Pro Ser Pro Ser Thr Leu
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Asn Gln Asn Leu Gly Leu Val Leu Pro Thr Asp Phe Asn Gly Gly Glu
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 Met Gly Asp Leu Ala
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 atg tcc gta gca gac atc agg atg gag aat gag cct gat gat tta gct 164
 Met Ser Val Ala Asp Ile Arg Met Glu Asn Glu Pro Asp Asp Leu Ala
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 Ser Asp Asn Val Ala Glu Ile Asp Val Ser Asp Glu Glu Ile Asp Ala
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 Ile Lys Glu Arg Gln Lys Ala Gly Ser Gln Gly Ala Gln Thr Lys Glu
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 Thr Pro Lys Lys Ile Ser Asp Gln Ala Gln Arg Lys Lys Met Ser Arg
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 Ala Gln Asp Gly Ile Leu Lys Tyr Met Leu Lys Leu Met Glu Val Cys
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 Lys Val Arg Gly Phe Val Tyr Gly Ile Ile Pro Glu Lys Gly Lys Pro
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 Val Ser Gly Ser Ser Asp Asn Ile Arg Ala Trp Trp Lys Glu Lys Val
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 Lys Phe Asp Lys Asn Gly Pro Ala Ala Ile Ala Lys Tyr Glu Glu Glu
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 Met Gln His Cys Asp Pro Pro Gln Arg Lys Tyr Pro Leu Glu Lys Gly
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 440 445 450

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gag ctt caa ttt ggg tca ggg tac aac ttc tac aat ccc tct gca gtg 1556
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 Asn Thr Gln Ala Pro Pro His Asn Ser Gly Phe Glu Glu Ala Pro Gly
 505 510 515

gga gta ctt caa ccc ctt ggt tta ctc gga aat gaa gac ggt gta aca 1700
 Gly Val Leu Gln Pro Leu Gly Leu Leu Gly Asn Glu Asp Gly Val Thr
 520 525 530

ggg agt gag ttg cct cag tat cag agt ggc att ctg tct cca ttg act 1748
 Gly Ser Glu Leu Pro Gln Tyr Gln Ser Gly Ile Leu Ser Pro Leu Thr
 535 540 545

gac ttg gac ttt gac tat ggt ggt ttt ggt gat gat ttc tca tgg ttt 1796
 Asp Leu Asp Phe Asp Tyr Gly Gly Phe Gly Asp Asp Phe Ser Trp Phe
 550 555 560 565

gga gct tag tgccttgcca ttttttttgg gagattacat agttcaaaaag 1845
 Gly Ala

gacatggcaa tagtctggct agtacagtta ctttctcttc ttcatctctt ctgatcttat 1905

attctctctc tttttttctt ataataatctt cttagatttg ttaagagaaa caattttcct 1965

tttgaataag ttgccagaag aactgctttg cccgttgtaa tggctcttag ggaagcagt 2025

tagcgtatca tcatttgtaa atttactgtg ag 2057

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Met Gly Asp Leu Ala Met Ser Val Ala Asp Ile Arg Met Glu Asn Glu
 1 5 10 15

Pro Asp Asp Leu Ala Ser Asp Asn Val Ala Glu Ile Asp Val Ser Asp
 20 25 30

Glu Glu Ile Asp Ala Asp Asp Leu Glu Arg Arg Met Trp Lys Asp Arg
35 40 45

Val Arg Leu Lys Arg Ile Lys Glu Arg Gln Lys Ala Gly Ser Gln Gly
50 55 60

Ala Gln Thr Lys Glu Thr Pro Lys Lys Ile Ser Asp Gln Ala Gln Arg
65 70 75 80

Lys Lys Met Ser Arg Ala Gln Asp Gly Ile Leu Lys Tyr Met Leu Lys
85 90 95

Leu Met Glu Val Cys Lys Val Arg Gly Phe Val Tyr Gly Ile Ile Pro
100 105 110

Glu Lys Gly Lys Pro Val Ser Gly Ser Ser Asp Asn Ile Arg Ala Trp
115 120 125

Trp Lys Glu Lys Val Lys Phe Asp Lys Asn Gly Pro Ala Ala Ile Ala
130 135 140

Lys Tyr Glu Glu Glu Cys Leu Ala Phe Gly Lys Ser Asp Gly Asn Arg
145 150 155 160

Asn Ser Gln Phe Val Leu Gln Asp Leu Gln Asp Ala Thr Leu Gly Ser
165 170 175

Leu Leu Ser Ser Leu Met Gln His Cys Asp Pro Pro Gln Arg Lys Tyr
180 185 190

Pro Leu Glu Lys Gly Thr Pro Pro Pro Trp Trp Pro Thr Gly Asn Glu
195 200 205

Glu Trp Trp Val Lys Leu Gly Leu Pro Lys Ser Gln Ser Pro Pro Tyr
210 215 220

Arg Lys Pro His Asp Leu Lys Lys Met Trp Lys Val Gly Val Leu Thr
225 230 235 240

Ala Val Ile Asn His Met Leu Pro Asp Ile Ala Lys Ile Lys Arg His
245 250 255

Val Arg Gln Ser Lys Cys Leu Gln Asp Lys Met Thr Ala Lys Glu Ser
260 265 270

Ala Ile Trp Leu Ala Val Leu Asn Gln Glu Glu Ser Leu Ile Gln Gln
275 280 285

Pro Ser Ser Asp Asn Gly Asn Ser Asn Val Thr Glu Thr His Arg Arg
290 295 300

Gly Asn Asn Ala Asp Arg Arg Lys Pro Val Val Asn Ser Asp Ser Asp
305 310 315 320

Tyr Asp Val Asp Gly Thr Glu Glu Ala Ser Gly Ser Val Ser Ser Lys
325 330 335

Asp Ser Arg Arg Asn Gln Ile Gln Lys Glu Gln Pro Thr Ala Ile Ser
340 345 350

His Ser Val Arg Asp Gln Asp Lys Ala Glu Lys His Arg Arg Arg Lys
355 360 365

Arg Pro Arg Ile Arg Ser Gly Thr Val Asn Arg Gln Glu Glu Glu Gln
370 375 380

Pro Glu Ala Gln Gln Arg Asn Ile Leu Pro Asp Met Asn His Val Asp
385 390 395 400

Ala Pro Leu Leu Glu Tyr Asn Ile Asn Gly Thr His Gln Glu Asp Asp
405 410 415

Val Val Asp Pro Asn Ile Ala Leu Gly Pro Glu Asp Asn Gly Leu Glu
420 425 430

Leu Val Val Pro Glu Phe Asn Asn Asn Tyr Thr Tyr Leu Pro Leu Val
435 440 445

Asn Glu Gln Thr Met Met Pro Val Asp Glu Arg Pro Met Leu Tyr Gly
450 455 460

Pro Asn Pro Asn Gln Glu Leu Gln Phe Gly Ser Gly Tyr Asn Phe Tyr
465 470 475 480

Asn Pro Ser Ala Val Phe Val His Asn Gln Glu Asp Asp Ile Leu His
485 490 495

Thr Gln Ile Glu Met Asn Thr Gln Ala Pro Pro His Asn Ser Gly Phe
500 505 510

Glu Glu Ala Pro Gly Gly Val Leu Gln Pro Leu Gly Leu Leu Gly Asn
515 520 525

Glu Asp Gly Val Thr Gly Ser Glu Leu Pro Gln Tyr Gln Ser Gly Ile
530 535 540

Leu Ser Pro Leu Thr Asp Leu Asp Phe Asp Tyr Gly Gly Phe Gly Asp
545 550 555 560

Asp Phe Ser Trp Phe Gly Ala
565

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<222> (46)..(591) <223> G977

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Met Ala Arg Pro
1

caa caa cgc ttt cga ggc gtt aga cag agg cat tgg ggc tct tgg gtc 105
Gln Gln Arg Phe Arg Gly Val Arg Gln Arg His Trp Gly Ser Trp Val
5 10 15 20

tcc gaa att cgt cac cct ctc ttg aaa aca aga atc tgg cta ggg acg 153
Ser Glu Ile Arg His Pro Leu Leu Lys Thr Arg Ile Trp Leu Gly Thr
25 30 35

ttt gag aca gcg gag gat gca gca agg gcc tac gac gag gcg gct agg 201
Phe Glu Thr Ala Glu Asp Ala Ala Arg Ala Tyr Asp Glu Ala Ala Arg
40 45 50

cta atg tgt ggc ccg aga gct cgt act aat ttc cca tac aac cct aat 249
Leu Met Cys Gly Pro Arg Ala Arg Thr Asn Phe Pro Tyr Asn Pro Asn
55 60 65

gcc att cct act tcc tct tcc aag ctt cta tca gca act ctt acc gct 297
Ala Ile Pro Thr Ser Ser Ser Lys Leu Leu Ser Ala Thr Leu Thr Ala
70 75 80

aaa ctc cac aaa tgc tac atg gct tct ctt caa atg acc aag caa acg 345
Lys Leu His Lys Cys Tyr Met Ala Ser Leu Gln Met Thr Lys Gln Thr
85 90 95 100

caa aca caa acg caa acg cag acc gca aga tca caa tcc gcg gac agt 393

Gln Thr Gln Thr Gln Thr Ala Arg Ser Gln Ser Ala Asp Ser	105	110	115	
gac ggt gtg acg gct aac gaa agt cat ttg aac aga gga gta acg gag				441
Asp Gly Val Thr Ala Asn Glu Ser His Leu Asn Arg Gly Val Thr Glu	120	125	130	
acg aca gag atc aag tgg gaa gat gga aat gcg aat atg caa cag aat				489
Thr Thr Glu Ile Lys Trp Glu Asp Gly Asn Ala Asn Met Gln Gln Asn	135	140	145	
ttt agg cca ttg gag gaa gat cat atc gag caa atg att gag gag ctg				537
Phe Arg Pro Leu Glu Glu Asp His Ile Glu Gln Met Ile Glu Glu Leu	150	155	160	
ctt cac tac ggt tcc att gag ctt tgc tct gtt tta cca act cag acg				585
Leu His Tyr Gly Ser Ile Glu Leu Cys Ser Val Leu Pro Thr Gln Thr	165	170	175	180
ctg tga gaaatggcct tgcgttttta gcgtattctt ttcattttta tttttgttc				641
Leu				
cacaaaaacg gcgtcgtaag tgatgagagt agtagtgaga gaaggctaata ttcaagacat				701
tttgatctga attggcctct ttgaaacac tgattctagt ttctataaga gcaatcgatc				761
atatgctatg ttatgtatag tattataaaa aaatgttatt ttctgattaa aaaaaaaaaa				821
aaaaaaaaaa aa				833
<210> 152 <211> 181 <212> PRT <213> Arabidopsis thaliana <400> 152				
Met Ala Arg Pro Gln Gln Arg Phe Arg Gly Val Arg Gln Arg His Trp	1	5	10	15
Gly Ser Trp Val Ser Glu Ile Arg His Pro Leu Leu Lys Thr Arg Ile	20	25	30	
Trp Leu Gly Thr Phe Glu Thr Ala Glu Asp Ala Ala Arg Ala Tyr Asp	35	40	45	
Glu Ala Ala Arg Leu Met Cys Gly Pro Arg Ala Arg Thr Asn Phe Pro	50	55	60	
Tyr Asn Pro Asn Ala Ile Pro Thr Ser Ser Ser Lys Leu Leu Ser Ala	65	70	75	80
Thr Leu Thr Ala Lys Leu His Lys Cys Tyr Met Ala Ser Leu Gln Met	85	90	95	

Thr Lys Gln Thr Gln Thr Gln Thr Gln Thr Gln Thr Ala Arg Ser Gln
100 105 110

Ser Ala Asp Ser Asp Gly Val Thr Ala Asn Glu Ser His Leu Asn Arg
115 120 125

Gly Val Thr Glu Thr Thr Glu Ile Lys Trp Glu Asp Gly Asn Ala Asn
130 135 140

Met Gln Gln Asn Phe Arg Pro Leu Glu Glu Asp His Ile Glu Gln Met
145 150 155 160

Ile Glu Glu Leu Leu His Tyr Gly Ser Ile Glu Leu Cys Ser Val Leu
165 170 175

Pro Thr Gln Thr Leu
180

<210> 153 <211> 1530 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (60)..(1352) <223> G979

<400> 153
cctctgagga atcaaatcac tcacactcca aaaaaaaatc taaactttct cagagtta 59

atg aag aag cgc tta acc act tcc act tgt tct tct tct cca tct tcc 107
Met Lys Lys Arg Leu Thr Thr Ser Thr Cys Ser Ser Ser Pro Ser Ser
1 5 10 15

tct gtt tct tct tct act act act tcc tct cct att cag tgg gag gct 155
Ser Val Ser Ser Ser Thr Thr Thr Ser Ser Pro Ile Gln Ser Glu Ala
20 25 30

cca agg cct aaa cga gcc aaa agg gct aag aaa tct tct cct tct ggt 203
Pro Arg Pro Lys Arg Ala Lys Arg Ala Lys Lys Ser Ser Pro Ser Gly
35 40 45

gat aaa tct cat aac ccg aca agc cct gct tct acc cga cgc agc tct 251
Asp Lys Ser His Asn Pro Thr Ser Pro Ala Ser Thr Arg Arg Ser Ser
50 55 60

atc tac aga gga gtc act aga cat aga tgg act ggg aga ttc gag gct 299
Ile Tyr Arg Gly Val Thr Arg His Arg Trp Thr Gly Arg Phe Glu Ala
65 70 75 80

cat ctt tgg gac aaa agc tct tgg aat tgg att cag aac aag aaa ggc 347
His Leu Trp Asp Lys Ser Ser Trp Asn Ser Ile Gln Asn Lys Lys Gly
85 90 95

aaa caa gtt tat ctg gga gca tat gac agt gaa gaa gca gca gca cat 395
Lys Gln Val Tyr Leu Gly Ala Tyr Asp Ser Glu Glu Ala Ala Ala His

	100	105	110	
	acg tac gat ctg gct gct ctc aag tac tgg gga ccc gac acc atc ttg			443
	Thr Tyr Asp Leu Ala Ala Leu Lys Thr Trp Gly Pro Asp Thr Ile Leu			
	115	120	125	
	aat ttt ccg gca gag acg tac aca aag gaa ttg gaa gaa atg cag aga			491
	Asn Phe Pro Ala Glu Thr Tyr Thr Lys Glu Leu Glu Glu Met Gln Arg			
	130	135	140	
	gtg aca aag gaa gaa tat ttg gct tct ctc cgc cgc cag agc agt ggt			539
	Val Thr Lys Glu Glu Tyr Leu Ala Ser Leu Arg Arg Gln Ser Ser Gly			
	145	150	155	160
	ttc tcc aga ggc gtc tct aaa tat cgc ggc gtc gct agg cat cac cac			587
	Phe Ser Arg Gly Val Ser Lys Tyr Arg Gly Val Ala Arg His His His			
	165	170	175	
	aac gga aga tgg gag gct cgg atc gga aga gtg ttt ggg aac aag tac			635
	Asn Gly Arg Trp Glu Ala Arg Ile Gly Arg Val Phe Gly Asn Lys Tyr			
	180	185	190	
	ttg tac ctc ggc acc tat aat acg cag gag gaa gct gct gca gca tat			683
	Leu Tyr Leu Gly Thr Tyr Asn Thr Gln Glu Glu Ala Ala Ala Tyr			
	195	200	205	
	gac atg gct gcg att gag tat cga ggc gca aac gcg gtt act aat ttc			731
	Asp Met Ala Ala Ile Glu Tyr Arg Gly Ala Asn Ala Val Thr Asn Phe			
	210	215	220	
	gac att agt aat tac att gac cgg tta aag aag aaa ggt gtt ttc ccg			779
	Asp Ile Ser Asn Tyr Ile Asp Arg Leu Lys Lys Lys Gly Val Phe Pro			
	225	230	235	240
	ttc cct gtg aac caa gct aac cat caa gag ggt att ctt gtt gaa gcc			827
	Phe Pro Val Asn Gln Ala Asn His Gln Glu Gly Ile Leu Val Glu Ala			
	245	250	255	
	aaa caa gaa gtt gaa acg aga gaa gcg aag gaa gag cct aga gaa gaa			875
	Lys Gln Glu Val Glu Thr Arg Glu Ala Lys Glu Glu Pro Arg Glu Glu			
	260	265	270	
	gtg aaa caa cag tac gtg gaa gaa cca ccg caa gaa gaa gaa gag aag			923
	Val Lys Gln Gln Tyr Val Glu Glu Pro Pro Gln Glu Glu Glu Glu Lys			
	275	280	285	
	gaa gaa gag aaa gca gag caa caa gaa gca gag att gta gga tat tca			971
	Glu Glu Glu Lys Ala Glu Gln Gln Glu Ala Glu Ile Val Gly Tyr Ser			
	290	295	300	
	gaa gaa gca gca gtg gtc aat tgc tgc ata gac tct tca acc ata atg			1019
	Glu Glu Ala Ala Val Val Asn Cys Cys Ile Asp Ser Ser Thr Ile Met			
	305	310	315	320
	gaa atg gat cgt tgt ggg gac aac aat gag ctg gct tgg aac ttc tgt			1067
	Glu Met Asp Arg Cys Gly Asp Asn Asn Glu Leu Ala Trp Asn Phe Cys			
	325	330	335	

atg atg gat aca ggg ttt tct ccg ttt ttg act gat cag aat ctc gcg 1115
Met Met Asp Thr Gly Phe Ser Pro Phe Leu Thr Asp Gln Asn Leu Ala
340 345 350

aat gag aat ccc ata gag tat ccg gag cta ttc aat gag tta gca ttt 1163
Asn Glu Asn Pro Ile Glu Tyr Pro Glu Leu Phe Asn Glu Leu Ala Phe
355 360 365

gag gac aac atc gac ttc atg ttc gat gat ggg aag cac gag tgc ttg 1211
Glu Asp Asn Ile Asp Phe Met Phe Asp Asp Gly Lys His Glu Cys Leu
370 375 380

aac ttg gaa aat ctg gat tgt tgc gtg gtg gga aga gag agc cca ccc 1259
Asn Leu Glu Asn Leu Asp Cys Cys Val Val Gly Arg Glu Ser Pro Pro
385 390 400

tct tct tct tca cca ttg tct tgc tta tct act gac tct gct tca tca 1307
Ser Ser Ser Ser Pro Leu Ser Cys Leu Ser Thr Asp Ser Ala Ser Ser
405 410 415

aca aca aca aca aca acc tcg gtt tct tgt aac tat ttg gtc tga 1352
Thr Thr Thr Thr Thr Thr Ser Val Ser Cys Asn Tyr Leu Val
420 425 430

gagagagagc tttgccttct agtttgaatt tctatttctt ccgcttcttc ttcttttttt 1412
tctttttgtt gggtctgctt aggggtttgta ttccagtttc agggcttggt cgttggttct 1472

gaataatcaa tgtctttgcc ccttttaaaa agatacaaga aaaaaaaaaa aaaaaaaaaa 1530

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Met Lys Lys Arg Leu Thr Thr Ser Thr Cys Ser Ser Ser Pro Ser Ser
1 5 10 15

Ser Val Ser Ser Ser Thr Thr Thr Ser Ser Pro Ile Gln Ser Glu Ala
20 25 30

Pro Arg Pro Lys Arg Ala Lys Arg Ala Lys Lys Ser Ser Pro Ser Gly
35 40 45

Asp Lys Ser His Asn Pro Thr Ser Pro Ala Ser Thr Arg Arg Ser Ser
50 55 60

Ile Tyr Arg Gly Val Thr Arg His Arg Trp Thr Gly Arg Phe Glu Ala
65 70 75 80

His Leu Trp Asp Lys Ser Ser Trp Asn Ser Ile Gln Asn Lys Lys Gly
85 90 95

Lys Gln Val Tyr Leu Gly Ala Tyr Asp Ser Glu Glu Ala Ala Ala His
100 105 110

Thr Tyr Asp Leu Ala Ala Leu Lys Tyr Trp Gly Pro Asp Thr Ile Leu
115 120 125

Asn Phe Pro Ala Glu Thr Tyr Thr Lys Glu Leu Glu Glu Met Gln Arg
130 135 140

Val Thr Lys Glu Glu Tyr Leu Ala Ser Leu Arg Arg Gln Ser Ser Gly
145 150 155 160

Phe Ser Arg Gly Val Ser Lys Tyr Arg Gly Val Ala Arg His His His
165 170 175

Asn Gly Arg Trp Glu Ala Arg Ile Gly Arg Val Phe Gly Asn Lys Tyr
180 185 190

Leu Tyr Leu Gly Thr Tyr Asn Thr Gln Glu Glu Ala Ala Ala Tyr
195 200 205

Asp Met Ala Ala Ile Glu Tyr Arg Gly Ala Asn Ala Val Thr Asn Phe
210 215 220

Asp Ile Ser Asn Tyr Ile Asp Arg Leu Lys Lys Lys Gly Val Phe Pro
225 230 235 240

Phe Pro Val Asn Gln Ala Asn His Gln Glu Gly Ile Leu Val Glu Ala
245 250 255

Lys Gln Glu Val Glu Thr Arg Glu Ala Lys Glu Glu Pro Arg Glu Glu
260 265 270

Val Lys Gln Gln Tyr Val Glu Glu Pro Pro Gln Glu Glu Glu Lys
275 280 285

Glu Glu Glu Lys Ala Glu Gln Gln Glu Ala Glu Ile Val Gly Tyr Ser
290 295 300

Glu Glu Ala Ala Val Val Asn Cys Cys Ile Asp Ser Ser Thr Ile Met
305 310 315 320

Glu Met Asp Arg Cys Gly Asp Asn Asn Glu Leu Ala Trp Asn Phe Cys
325 330 335

Met Met Asp Thr Gly Phe Ser Pro Phe Leu Thr Asp Gln Asn Leu Ala
340 345 350

Asn Glu Asn Pro Ile Glu Tyr Pro Glu Leu Phe Asn Glu Leu Ala Phe
355 360 365

Glu Asp Asn Ile Asp Phe Met Phe Asp Asp Gly Lys His Glu Cys Leu
370 375 380

Asn Leu Glu Asn Leu Asp Cys Cys Val Val Gly Arg Glu Ser Pro Pro
385 390 395 400

Ser Ser Ser Ser Pro Leu Ser Cys Leu Ser Thr Asp Ser Ala Ser Ser
405 410 415

Thr Thr Thr Thr Thr Thr Ser Val Ser Cys Asn Tyr Leu Val
420 425 430

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<222> (1)..(954) <223> G1000

<400> 155
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Met Gly Arg Pro Pro Cys Cys Asp Lys Ser Asn Val Lys Lys Gly Leu
1 5 10 15

tgg acc gag gaa gaa gac gct aag atc ctt gct tat gtt gct atc cat 96
Trp Thr Glu Glu Asp Ala Lys Ile Leu Ala Tyr Val Ala Ile His
20 25 30

ggt gta gga aac tgg agc ttg atc ccc aaa aaa gca ggt ctg aat cga 144
Gly Val Gly Asn Trp Ser Leu Ile Pro Lys Lys Ala Gly Leu Asn Arg
35 40 45

tgt gga aag agc tgt aga cta aga tgg act aat tac tta aga cct gac 192
Cys Gly Lys Ser Cys Arg Leu Arg Trp Thr Asn Tyr Leu Arg Pro Asp
50 55 60

ctt aaa cat gac agc ttc tct acc caa gaa gaa gag ctt atc att gag 240
Leu Lys His Asp Ser Phe Ser Thr Gln Glu Glu Glu Leu Ile Ile Glu
65 70 75 80

tgt cat aga gcc att ggc agc agg tgg tct tcc att gca cga aag ctt 288
Cys His Arg Ala Ile Gly Ser Arg Trp Ser Ser Ile Ala Arg Lys Leu
85 90 95

cca gga aga acg gat aat gat gtg aag aat cac tgg aac aca aag ctg 336

Pro Gly Arg Thr Asp Asn Asp Val Lys Asn His Trp Asn Thr Lys Leu	
100 105 110	
aag aag aag ctg atg aaa atg ggg ata gac ccg gtg act cat aaa ccg	384
Lys Lys Lys Leu Met Lys Met Gly Ile Asp Pro Val Thr His Lys Pro	
115 120 125	
gtt tct caa ctc ctt gca gaa ttc aga aac att agc ggc cat gga aat	432
Val Ser Gln Leu Leu Ala Glu Phe Arg Asn Ile Ser Gly His Gly Asn	
130 135 140	
gca tcc ttc aaa aca gaa cca tct aac aac tct ata ctc aca caa tcc	480
Ala Ser Phe Lys Thr Glu Pro Ser Asn Asn Ser Ile Leu Thr Gln Ser	
145 150 155 160	
aac tca gct tgg gaa atg atg aga aac aca aca aac cat gag agt	528
Asn Ser Ala Trp Glu Met Met Arg Asn Thr Thr Thr Asn His Glu Ser	
165 170 175	
tat tac acc aac tct cca atg atg ttt aca aat tcc tct gag tac caa	576
Tyr Tyr Thr Asn Ser Pro Met Met Phe Thr Asn Ser Ser Glu Tyr Gln	
180 185	
act act cca ttt cat ttc tat agc cat cca aat cat ctg ctc aat gga	624
Thr Thr Pro Phe His Phe Tyr Ser His Pro Asn His Leu Leu Asn Gly	
195 200 205	
acc aca tct tca tgc tct tcc tca tca tct tct act agt atc act cag	672
Thr Thr Ser Ser Cys Ser Ser Ser Ser Ser Ser Ser Ile Thr Gln	
210 215 220	
cca aac caa gta cct caa aca ccg gtt act aac ttc tac tgg agc gat	720
Pro Asn Gln Val Pro Gln Thr Pro Val Thr Asn Phe Tyr Trp Ser Asp	
225 230 235 240	
ttc ctt ctc tog gac ccg gtt cct caa gta gtg gga tcc tca gct act	768
Phe Leu Leu Ser Asp Pro Val Pro Gln Val Val Gly Ser Ser Ala Thr	
245 250 255	
agc gac ctc act ttt acg cag aac gaa cat cat ttc aac atc gaa gcc	816
Ser Asp Leu Thr Phe Thr Gln Asn Glu His His Phe Asn Ile Glu Ala	
260 265 270	
gaa tac atc tct caa aac atc gat tca aag gcc tog gga aca tgt cat	864
Glu Tyr Ile Ser Gln Asn Ile Asp Ser Lys Ala Ser Gly Thr Cys His	
275 280 285	
tcc gcg agt tcc ttc gtt gac gaa ata cta gat aaa gac caa gag atg	912
Ser Ala Ser Ser Phe Val Asp Glu Ile Leu Asp Lys Asp Gln Glu Met	
290 295 300	
ttg tca cag ttt cct caa ctc ttg aat gat ttc gat tat tag	954
Leu Ser Gln Phe Pro Gln Leu Leu Asn Asp Phe Asp Tyr	
305 310 315	

<210> 156 <211> 317 <212> PRT <213> Arabidopsis thaliana <400> 156

Met Gly Arg Pro Pro Cys Cys Asp Lys Ser Asn Val Lys Lys Gly Leu
1 5 10 15

Trp Thr Glu Glu Glu Asp Ala Lys Ile Leu Ala Tyr Val Ala Ile His
20 25 30

Gly Val Gly Asn Trp Ser Leu Ile Pro Lys Lys Ala Gly Leu Asn Arg
35 40 45

Cys Gly Lys Ser Cys Arg Leu Arg Trp Thr Asn Tyr Leu Arg Pro Asp
50 55 60

Leu Lys His Asp Ser Phe Ser Thr Gln Glu Glu Glu Leu Ile Ile Glu
65 70 75 80

Cys His Arg Ala Ile Gly Ser Arg Trp Ser Ser Ile Ala Arg Lys Leu
85 90 95

Pro Gly Arg Thr Asp Asn Asp Val Lys Asn His Trp Asn Thr Lys Leu
100 105 110

Lys Lys Lys Leu Met Lys Met Gly Ile Asp Pro Val Thr His Lys Pro
115 120 125

Val Ser Gln Leu Leu Ala Glu Phe Arg Asn Ile Ser Gly His Gly Asn
130 135 140

Ala Ser Phe Lys Thr Glu Pro Ser Asn Asn Ser Ile Leu Thr Gln Ser
145 150 155 160

Asn Ser Ala Trp Glu Met Met Arg Asn Thr Thr Thr Asn His Glu Ser
165 170 175

Tyr Tyr Thr Asn Ser Pro Met Met Phe Thr Asn Ser Ser Glu Tyr Gln
180 185 190

Thr Thr Pro Phe His Phe Tyr Ser His Pro Asn His Leu Leu Asn Gly
195 200 205

Thr Thr Ser Ser Cys Ser Ser Ser Ser Ser Thr Ser Ile Thr Gln
210 215 220

Pro Asn Gln Val Pro Gln Thr Pro Val Thr Asn Phe Tyr Trp Ser Asp
225 230 235 240

Phe Leu Leu Ser Asp Pro Val Pro Gln Val Val Gly Ser Ser Ala Thr
245 250 255

Ser Asp Leu Thr Phe Thr Gln Asn Glu His His Phe Asn Ile Glu Ala
260 265 270

Glu Tyr Ile Ser Gln Asn Ile Asp Ser Lys Ala Ser Gly Thr Cys His
275 280 285

Ser Ala Ser Ser Phe Val Asp Glu Ile Leu Asp Lys Asp Gln Glu Met
290 295 300

Leu Ser Gln Phe Pro Gln Leu Leu Asn Asp Phe Asp Tyr
305 310 315

<210> 157 <211> 476 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (41)..(370) <223> G1012

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Met Asn Gly Leu Val
1 5

gac tct tct cga gat aag aag atg aaa aat ccg cga ttt tcg ttt cgc 103
Asp Ser Ser Arg Asp Lys Lys Met Lys Asn Pro Arg Phe Ser Phe Arg
10 15 20

aca aag agt gat gca gat att ctc gat gat ggt tat cga tgg aga aag 151
Thr Lys Ser Asp Ala Asp Ile Leu Asp Asp Gly Tyr Arg Trp Arg Lys
25 30 35

tac ggt cag aaa tcc gtc aag aac agc ttg tat ccc agg agc tat tat 199
Tyr Gly Gln Lys Ser Val Lys Asn Ser Leu Tyr Pro Arg Ser Tyr Tyr
40 45 50

aga tgc aca caa cac atg tgt aac gtg aag aag caa gtt cag agg ctg 247
Arg Cys Thr Gln His Met Cys Asn Val Lys Lys Gln Val Gln Arg Leu
55 60 65

tcg aag gag acg agc att gtg gag aca act tat gaa gga atc cat aac 295
Ser Lys Glu Thr Ser Ile Val Glu Thr Thr Tyr Glu Gly Ile His Asn
70 75 80 85

cat cct tgt gag gag ctc atg caa acc cta act cct ctt ctt cat caa 343
His Pro Cys Glu Glu Leu Met Gln Thr Leu Thr Pro Leu Leu His Gln
90 95 100

ttg cag ttc ctc tct aag ttc acc taa ttatgtttgt atatatatta 390

Leu Gln Phe Leu Ser Lys Phe Thr
105

acgtttctaag agcatctcca atggaagtat ctcaatgaga tacctaacaa aagaaaaaaa 450

atttaaaaaa aaaaaaaaaa aaaaaa 476

<210> 158 <211> 109 <212> PRT <213> Arabidopsis thaliana <400> 158

Met Asn Gly Leu Val Asp Ser Ser Arg Asp Lys Lys Met Lys Asn Pro
1 5 10 15

Arg Phe Ser Phe Arg Thr Lys Ser Asp Ala Asp Ile Leu Asp Asp Gly
20 25 30

Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Ser Val Lys Asn Ser Leu Tyr
35 40 45

Pro Arg Ser Tyr Tyr Arg Cys Thr Gln His Met Cys Asn Val Lys Lys
50 55 60

Gln Val Gln Arg Leu Ser Lys Glu Thr Ser Ile Val Glu Thr Thr Tyr
65 70 75 80

Glu Gly Ile His Asn His Pro Cys Glu Glu Leu Met Gln Thr Leu Thr
85 90 95

Pro Leu Leu His Gln Leu Gln Phe Leu Ser Lys Phe Thr
100 105

<210> 159 <211> 1257 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (174)..(1112) <223> G1014

<400> 159
cacaaccac agtctctctt tctctctcta tctatctctt cttctctctt ctatctctat 60

cactgaaacc caaagagatc caccatttgt tcttttttcc ttacacaga gaactgtttt 120

cttccacact tcttttttac taggcagtgt taaccaattg agagagaaaa atg atg
Met
1 176

gtt gat gaa aat gtg gaa acc aag gcc tct act tta gtg gca agt gtt 224
Val Asp Glu Asn Val Glu Thr Lys Ala Ser Thr Leu Val Ala Ser Val .
5 10 15

gat cat ggg ttt gga tcc ggg tgg ggt cat gat cat cat ggg tta tgg 272
Asp His Gly Phe Gly Ser Gly Ser Gly His Asp His His Gly Leu Ser
20 25 30

gcg tct gtg cct ctt ctt ggt gtt aac tgg aag aag aga agg atg cct Ala Ser Val Pro Leu Leu Gly Val Asn Trp Lys Lys Arg Arg Met Pro 35 40 45	320
aga cag aga cga tct tct tct tcc ttt aac ctt ctc tct ttc cct cct Arg Gln Arg Arg Ser Ser Ser Ser Phe Asn Leu Leu Ser Phe Pro Pro 50 55 60 65	368
cct atg cct cct att tcc cac gtg cca act cct ctc ccc gca cgt aaa Pro Met Pro Pro Ile Ser His Val Pro Thr Pro Leu Pro Ala Arg Lys 70 75 80	416
att gac cca aga aag cta aga ttc ctc ttc caa aag gaa ctc aag aac Ile Asp Pro Arg Lys Leu Arg Phe Leu Phe Gln Lys Glu Leu Lys Asn 85 90 95	464
agt gac gtc agc tct ctc cga cgt atg ata ctc ccg aag aaa gcc gcg Ser Asp Val Ser Ser Leu Arg Arg Met Ile Leu Pro Lys Lys Ala Ala 100 105 110	512
gag gct cac ttg ccg gca ctt gaa tgc aag gaa ggg att cct ata aga Glu Ala His Leu Pro Ala Leu Glu Cys Lys Glu Gly Ile Pro Ile Arg 115 120 125	560
atg gaa gat ttg gac ggt ttt cac gtt tgg acc ttc aag tat agg tac Met Glu Asp Leu Asp Gly Phe His Val Trp Thr Phe Lys Tyr Arg Tyr 130 135 140 145	608
tgg cca aac aac aat agc aga atg tac gtg cta gaa aac aca ggc gat Trp Pro Asn Asn Asn Ser Arg Met Tyr Val Leu Glu Asn Thr Gly Asp 150 155 160	656
ttt gtg aat gct cat ggt ctg cag cta ggt gac ttc atc atg gtt tac Phe Val Asn Ala His Gly Leu Gln Leu Gly Asp Phe Ile Met Val Tyr 165 170 175	704
caa gat ctc tac tca aac aat tac gtt ata caa gca aga aaa gca tcg Gln Asp Leu Tyr Ser Asn Asn Tyr Val Ile Gln Ala Arg Lys Ala Ser 180 185 190	752
gaa gaa gaa gaa gta gac gta atc aat ctt gaa gaa gac gac gtt tac Glu Glu Glu Glu Val Asp Val Ile Asn Leu Glu Glu Asp Asp Val Tyr 195 200 205	800
aca aac tta aca agg atc gaa aac act gtg gtt aac gat ctt ctc ctc Thr Asn Leu Thr Arg Ile Glu Asn Thr Val Val Asn Asp Leu Leu Leu 210 215 220 225	848
caa gat ttt aat cat cac aac aac aac aac aac aac agc aac agc Gln Asp Phe Asn His His Asn Asn Asn Asn Asn Asn Ser Asn Ser 230 235 240	896
aac agc aac aaa tgt tct tac tat tat cca gtc ata gat gat gtc acc Asn Ser Asn Lys Cys Ser Tyr Tyr Tyr Pro Val Ile Asp Asp Val Thr 245 250 255	944

aca aac aca gag tct ttt gtc tac gac acg acg gct ctt acc tcc aac 992
 Thr Asn Thr Glu Ser Phe Val Tyr Asp Thr Thr Ala Leu Thr Ser Asn
 260 265 270

gat act cct ctc gat ttt ttg ggt gga cat acg acg act act aat aat 1040
 Asp Thr Pro Leu Asp Phe Leu Gly Gly His Thr Thr Thr Thr Asn Asn
 275 280 285

tat tac tcc aag ttc gga aca ttc gat ggt ttg ggc tcc gtt gag aat 1088
 Tyr Tyr Ser Lys Phe Gly Thr Phe Asp Gly Leu Gly Ser Val Glu Asn
 290 295 300 305

atc tct ctc gat gac ttc tac tag ataatacaatc gatgggctca tgggtattctt 1142
 Ile Ser Leu Asp Asp Phe Tyr
 310

gatggtgac agctatttaa tacccttata atatataataa gaattaaatg caatttgcac 1202
 atatattatc aagtgttgta atataacatt acagttttaa aaaaaaaaaa aaaaa 1257

<210> 160 <211> 312 <212> PRT <213> Arabidopsis thaliana <400> 160

Met Val Asp Glu Asn Val Glu Thr Lys Ala Ser Thr Leu Val Ala Ser
 1 5 10 15

Val Asp His Gly Phe Gly Ser Gly Ser Gly His Asp His His Gly Leu
 20 25 30

Ser Ala Ser Val Pro Leu Leu Gly Val Asn Trp Lys Lys Arg Arg Met
 35 40 45

Pro Arg Gln Arg Arg Ser Ser Ser Ser Phe Asn Leu Leu Ser Phe Pro
 50 55 60

Pro Pro Met Pro Pro Ile Ser His Val Pro Thr Pro Leu Pro Ala Arg
 65 70 75 80

Lys Ile Asp Pro Arg Lys Leu Arg Phe Leu Phe Gln Lys Glu Leu Lys
 85 90 95

Asn Ser Asp Val Ser Ser Leu Arg Arg Met Ile Leu Pro Lys Lys Ala
 100 105 110

Ala Glu Ala His Leu Pro Ala Leu Glu Cys Lys Glu Gly Ile Pro Ile
 115 120 125

Arg Met Glu Asp Leu Asp Gly Phe His Val Trp Thr Phe Lys Tyr Arg
 130 135 140

Tyr Trp Pro Asn Asn Asn Ser Arg Met Tyr Val Leu Glu Asn Thr Gly
145 150 155 160

Asp Phe Val Asn Ala His Gly Leu Gln Leu Gly Asp Phe Ile Met Val
165 170 175

Tyr Gln Asp Leu Tyr Ser Asn Asn Tyr Val Ile Gln Ala Arg Lys Ala
180 185 190

Ser Glu Glu Glu Glu Val Asp Val Ile Asn Leu Glu Glu Asp Asp Val
195 200 205

Tyr Thr Asn Leu Thr Arg Ile Glu Asn Thr Val Val Asn Asp Leu Leu
210 215 220

Leu Gln Asp Phe Asn His His Asn Asn Asn Asn Asn Asn Ser Asn
225 230 235 240

Ser Asn Ser Asn Lys Cys Ser Tyr Tyr Tyr Pro Val Ile Asp Asp Val
245 250 255

Thr Thr Asn Thr Glu Ser Phe Val Tyr Asp Thr Thr Ala Leu Thr Ser
260 265 270

Asn Asp Thr Pro Leu Asp Phe Leu Gly Gly His Thr Thr Thr Thr Asn
275 280 285

Asn Tyr Tyr Ser Lys Phe Gly Thr Phe Asp Gly Leu Gly Ser Val Glu
290 295 300

Asn Ile Ser Leu Asp Asp Phe Tyr
305 310

<210> 161 <211> 1057 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (51)..(863) <223> G1040

<400> 161
ctttgatctc cactatttaa gtagacaaga atcataaaga aaatagttag atg atg 56
Met Met
1

atg tta gag tca aga aac agt atg aga gct tca aac tca gtc cca gat 104
Met Leu Glu Ser Arg Asn Ser Met Arg Ala Ser Asn Ser Val Pro Asp
5 10 15

gag gat acc aac att cat ctc aat ttg gat ttc aca ttg ggc ggc cta 824
 Glu Asp Thr Asn Ile His Leu Asn Leu Asp Phe Thr Leu Gly Gly Leu
 245 250 255

gtt ggg gga tgg aat atg cgg aac cct cca gtg att taa cccctctcaa 873
 Val Gly Gly Trp Asn Met Arg Asn Pro Pro Val Ile
 260 265 270

gtgctaattg ccttaagcta caacaataa gtcagcttag gttaccagtt ttaacataat 933

tttaacttgt ttgatcata tgagcttcgg aagaatcata ttatcatcat atatgaactt 993

ctttccaaga atgttctatg agttttttga tatgtataat caagagaato gtttgaagta 1053

aaaa 1057

<210> 162 <211> 270 <212> PRT <213> Arabidopsis thaliana <400> 162

Met Met Met Leu Glu Ser Arg Asn Ser Met Arg Ala Ser Asn Ser Val
 1 5 10 15

Pro Asp Leu Ser Leu Gln Ile Ser Leu Pro Asn Tyr His Ala Gly Lys
 20 25 30

Pro Leu His Gly Gly Asp Arg Ser Ser Thr Ser Ser Asp Ser Gly Ser
 35 40 45

Ser Leu Ser Asp Leu Ser His Glu Asn Asn Phe Phe Asn Lys Pro Leu
 50 55 60

Leu Ser Leu Gly Phe Asp His His His Gln Arg Arg Ser Asn Met Phe
 65 70 75 80

Gln Pro Gln Ile Tyr Gly Arg Asp Phe Lys Arg Ser Ser Ser Ser Met
 85 90 95

Val Gly Leu Lys Arg Ser Ile Arg Ala Pro Arg Met Arg Trp Thr Ser
 100 105 110

Thr Leu His Ala His Phe Val His Ala Val Gln Leu Leu Gly Gly His
 115 120 125

Glu Arg Ala Thr Pro Lys Ser Val Leu Glu Leu Met Asn Val Lys Asp
 130 135 140

Leu Thr Leu Ala His Val Lys Ser His Leu Gln Met Tyr Arg Thr Val
 145 150 155 160

Lys Cys Thr Asp Lys Gly Ser Pro Gly Glu Gly Lys Val Glu Lys Glu
165 170 175

Ala Glu Gln Arg Ile Glu Asp Asn Asn Asn Asn Glu Glu Ala Asp Glu
180 185 190

Gly Thr Asp Thr Asn Ser Pro Asn Ser Ser Ser Val Gln Lys Thr Gln
195 200 205

Arg Ala Ser Trp Ser Ser Thr Lys Glu Val Ser Arg Ser Ile Ser Thr
210 215 220

Gln Ala Tyr Ser His Leu Gly Thr Thr His His Thr Lys Ala Asn Glu
225 230 235 240

Glu Lys Glu Asp Thr Asn Ile His Leu Asn Leu Asp Phe Thr Leu Gly
245 250 255

Gly Leu Val Gly Gly Trp Asn Met Arg Asn Pro Pro Val Ile
260 265 270

<210> 163 <211> 1766 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (23)..(1582) <223> G1050

<400> 163
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Met Gly Gly Gly Gly Asp Thr Thr Asp Thr
1 5 10

aat atg atg cag aga gtt aat tct tct tct ggt aca tcg tct tct tog 100
Asn Met Met Gln Arg Val Asn Ser Ser Ser Gly Thr Ser Ser Ser Ser
15 20 25

atc cct aaa cac aat ctt cac ttg aat cct gct ctt atc cgc tct cac 148
Ile Pro Lys His Asn Leu His Leu Asn Pro Ala Leu Ile Arg Ser His
30 35 40

cat cac ttc cgt cac cct ttc acc gga gct cct cca ccg ccg att cca 196
His His Phe Arg His Pro Phe Thr Gly Ala Pro Pro Pro Pro Ile Pro
45 50 55

ccc att tct cct tac tct cag atc ccg gcg act tta caa cct aga cat 244
Pro Ile Ser Pro Tyr Ser Gln Ile Pro Ala Thr Leu Gln Pro Arg His
60 65 70

tct cgc tct atg tcg caa ccg tct tct ttc ttc tcc ttt gat tca ttg 292
Ser Arg Ser Met Ser Gln Pro Ser Ser Phe Phe Ser Phe Asp Ser Leu
75 80 85 90

ccg ccg tta aat cct tct gct ccg tcg gtt tcg gtg tcg gtg gag gag	340
Pro Pro Leu Asn Pro Ser Ala Pro Ser Val Ser Val Ser Val Ser	
95 100 105	
aaa acc ggt gcc gga ttt agt cct tcg ttg cct ccg tca ccg ttt acg	388
Lys Thr Gly Ala Gly Phe Ser Pro Ser Leu Pro Pro Ser Pro Phe Thr	
110 115 120	
atg tgt cat tct tct agc tct agg aac gcc gga gat gga gag aat cta	436
Met Cys His Ser Ser Ser Arg Asn Ala Gly Asp Gly Glu Asn Leu	
125 130 135	
cct ccg aga aag tcg cat agg cgt tcg aat agt gat gtt act ttt ggg	484
Pro Pro Arg Lys Ser His Arg Arg Ser Asn Ser Asp Val Thr Phe Gly	
140 145 150	
ttt agt tca atg atg tct cag aat caa aag tct cct cct ttg agt tct	532
Phe Ser Ser Met Met Ser Gln Asn Gln Lys Ser Pro Pro Leu Ser Ser	
155 160 165 170	
ttg gag aga tcg atc tct ggt gaa gat aca tca gat tgg tct aat ttg	580
Leu Glu Arg Ser Ile Ser Gly Glu Asp Thr Ser Asp Trp Ser Asn Leu	
175 180 185	
gtg aag aaa gaa ccg aga gaa ggc ttc tac aag gga aga aaa cca gag	628
Val Lys Lys Glu Pro Arg Glu Gly Phe Tyr Lys Gly Arg Lys Pro Glu	
190 195 200	
gtt gaa gca gct atg gac gat gtt ttc acg gct tat atg aat ctt gat	676
Val Glu Ala Ala Met Asp Asp Val Phe Thr Ala Tyr Met Asn Leu Asp	
205 210 215	
aac att gat gtc ttg aat tct ttt gga ggt gaa gat ggc aag aat ggg	724
Asn Ile Asp Val Leu Asn Ser Phe Gly Gly Glu Asp Gly Lys Asn Gly	
220 225 230	
aat gag aat gtg gag gag atg gag agt agt aga ggt agt ggt aca aag	772
Asn Glu Asn Val Glu Glu Met Glu Ser Ser Arg Gly Ser Gly Thr Lys	
235 240 245 250	
aag acg aat ggt gga agt agt agt gat tct gaa gga gat agc agt gcg	820
Lys Thr Asn Gly Gly Ser Ser Ser Asp Ser Glu Gly Asp Ser Ser Ala	
255 260 265	
agt ggg aat gtg aag gtt gcg ttg agt tct tct tct tca ggc gtg aag	868
Ser Gly Asn Val Lys Val Ala Leu Ser Ser Ser Ser Ser Val Lys	
270 275 280	
aga aga gca ggt gga gat att gct cct act ggt aga cat tac agg agt	916
Arg Arg Ala Gly Gly Asp Ile Ala Pro Thr Gly Arg His Tyr Arg Ser	
285 290 295	
gtt tct atg gac agt tgt ttc atg ggg aag ttg aat ttc ggc gac gaa	964
Val Ser Met Asp Ser Cys Phe Met Gly Lys Leu Asn Phe Gly Asp Glu	
300 305 310	

tca tgc cta aag ctt ccg cct tct tca tca gct aaa gtt tcc cca acc	1012
Ser Ser Leu Lys Leu Pro Pro Ser Ser Ser Ala Lys Val Ser Pro Thr	
315 320 325 330	
aat tca ggt gaa ggg aat tca agt gct tat agt gtt gaa ttt gga aac	1060
Asn Ser Gly Glu Gly Asn Ser Ser Ala Tyr Ser Val Glu Phe Gly Asn	
335 340 345	
agt gag ttt act gca gct gaa atg aag aag att gca gct gat gag aaa	1108
Ser Glu Phe Thr Ala Ala Glu Met Lys Lys Ile Ala Ala Asp Glu Lys	
350 355 360	
ctc gct gag att gta atg gct gac cct aag cgt gtt aaa aga atc ttg	1156
Leu Ala Glu Ile Val Met Ala Asp Pro Lys Arg Val Lys Arg Ile Leu	
365 370 375	
gcg aac cgc gta tct gct gca cgt tca aag gag cgg aag acg cga tac	1204
Ala Asn Arg Val Ser Ala Ala Arg Ser Lys Glu Arg Lys Thr Arg Tyr	
380 385 390	
atg gca gag ttg gaa cac aag gtg cag aca ctt cag act gaa gct act	1252
Met Ala Glu Leu Glu His Lys Val Gln Thr Leu Gln Thr Glu Ala Thr	
395 400 405 410	
aca tta tgc gct cag ctc aca cat ttg cag aga gat tct atg ggg ttg	1300
Thr Leu Ser Ala Glu Leu Thr His Leu Gln Arg Asp Ser Met Gly Leu	
415 420 425	
aca aac cag aac agt gag ctg aag ttt cgt ctt caa gct atg gag cag	1348
Thr Asn Gln Asn Ser Glu Leu Lys Phe Arg Leu Gln Ala Met Glu Gln	
430 435 440	
caa gca caa ctc cgc gat gct ctg tca gag aaa ctg aat gaa gaa gtc	1396
Gln Ala Gln Leu Arg Asp Ala Leu Ser Glu Lys Leu Asn Glu Glu Val	
445 450 455	
cag cgg ttg aaa ctg gtg ata ggg gag ccg aac cgc agg caa agt ggg	1444
Gln Arg Leu Lys Leu Val Ile Gly Glu Pro Asn Arg Arg Gln Ser Gly	
460 465 470	
agc agc agc agc gaa tca aag atg tca cta aac ccg gag atg ttt cag	1492
Ser Ser Ser Ser Glu Ser Lys Met Ser Leu Asn Pro Glu Met Phe Gln	
475 480 485 490	
cag ctt agc ata agt cag tta caa cac caa cag atg cag cat tcc aat	1540
Gln Leu Ser Ile Ser Gln Leu Gln His Gln Gln Met Gln His Ser Asn	
495 500 505	
cag tgt agc aca atg aaa gca aag cac act tca aac gac tag	1582
Gln Cys Ser Thr Met Lys Ala Lys His Thr Ser Asn Asp	
510 515	
ggtaagtaaa actgcgatcc gcagttgtct agttacatat atgataagaa tcttttgtgc	1642
agagttctgt ttttggaagt tttaaagaaa catatataaa gattatgtcc gggaaatttg	1702
atcatatttc ctgaaacata cacacatata tatagtggta atggaggact ttctttctgg	1762

acca

1766

<210> 164 <211> 519 <212> PRT <213> Arabidopsis thaliana <400> 164

Met Gly Gly Gly Gly Asp Thr Thr Asp Thr Asn Met Met Gln Arg Val
1 5 10 15

Asn Ser Ser Ser Gly Thr Ser Ser Ser Ser Ile Pro Lys His Asn Leu
20 25 30

His Leu Asn Pro Ala Leu Ile Arg Ser His His His Phe Arg His Pro
35 40 45

Phe Thr Gly Ala Pro Pro Pro Pro Ile Pro Pro Ile Ser Pro Tyr Ser
50 55 60

Gln Ile Pro Ala Thr Leu Gln Pro Arg His Ser Arg Ser Met Ser Gln
65 70 75 80

Pro Ser Ser Phe Phe Ser Phe Asp Ser Leu Pro Pro Leu Asn Pro Ser
85 90 95

Ala Pro Ser Val Ser Val Ser Val Glu Glu Lys Thr Gly Ala Gly Phe
100 105 110

Ser Pro Ser Leu Pro Pro Ser Pro Phe Thr Met Cys His Ser Ser Ser
115 120 125

Ser Arg Asn Ala Gly Asp Gly Glu Asn Leu Pro Pro Arg Lys Ser His
130 135 140

Arg Arg Ser Asn Ser Asp Val Thr Phe Gly Phe Ser Ser Met Met Ser
145 150 155 160

Gln Asn Gln Lys Ser Pro Pro Leu Ser Ser Leu Glu Arg Ser Ile Ser
165 170 175

Gly Glu Asp Thr Ser Asp Trp Ser Asn Leu Val Lys Lys Glu Pro Arg
180 185 190

Glu Gly Phe Tyr Lys Gly Arg Lys Pro Glu Val Glu Ala Ala Met Asp
195 200 205

Asp Val Phe Thr Ala Tyr Met Asn Leu Asp Asn Ile Asp Val Leu Asn
210 215 220

Ser Phe Gly Gly Glu Asp Gly Lys Asn Gly Asn Glu Asn Val Glu Glu
225 230 235 240

Met Glu Ser Ser Arg Gly Ser Gly Thr Lys Lys Thr Asn Gly Gly Ser
245 250 255

Ser Ser Asp Ser Glu Gly Asp Ser Ser Ala Ser Gly Asn Val Lys Val
260 265 270

Ala Leu Ser Ser Ser Ser Ser Gly Val Lys Arg Arg Ala Gly Gly Asp
275 280 285

Ile Ala Pro Thr Gly Arg His Tyr Arg Ser Val Ser Met Asp Ser Cys
290 295 300

Phe Met Gly Lys Leu Asn Phe Gly Asp Glu Ser Ser Leu Lys Leu Pro
305 310 315 320

Pro Ser Ser Ser Ala Lys Val Ser Pro Thr Asn Ser Gly Glu Gly Asn
325 330 335

Ser Ser Ala Tyr Ser Val Glu Phe Gly Asn Ser Glu Phe Thr Ala Ala
340 345 350

Glu Met Lys Lys Ile Ala Ala Asp Glu Lys Leu Ala Glu Ile Val Met
355 360 365

Ala Asp Pro Lys Arg Val Lys Arg Ile Leu Ala Asn Arg Val Ser Ala
370 375 380

Ala Arg Ser Lys Glu Arg Lys Thr Arg Tyr Met Ala Glu Leu Glu His
385 390 395 400

Lys Val Gln Thr Leu Gln Thr Glu Ala Thr Thr Leu Ser Ala Gln Leu
405 410 415

Thr His Leu Gln Arg Asp Ser Met Gly Leu Thr Asn Gln Asn Ser Glu
420 425 430

Leu Lys Phe Arg Leu Gln Ala Met Glu Gln Gln Ala Gln Leu Arg Asp
435 440 445

Ala Leu Ser Glu Lys Leu Asn Glu Glu Val Gln Arg Leu Lys Leu Val
450 455 460

Ile Gly Glu Pro Asn Arg Arg Gln Ser Gly Ser Ser Ser Ser Glu Ser
465 470 475 480

Lys Met Ser Leu Asn Pro Glu Met Phe Gln Gln Leu Ser Ile Ser Gln
485 490 495

Leu Gln His Gln Gln Met Gln His Ser Asn Gln Cys Ser Thr Met Lys
500 505 510

Ala Lys His Thr Ser Asn Asp
515

<210> 165 <211> 1304 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (138)..(1127) <223> G1052

<400> 165
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tcaaatcttt gatcctttcc ttgttttttc atttgacctc ttacaaaaaa atctggtgtg 120

ccattaaatc ttattat atg gca caa ctt cct ccg aaa atc cca acc atg 170
Met Ala Gln Leu Pro Pro Lys Ile Pro Thr Met
1 5 10

acg acg cca aat tgg cct gac ttc tcc tcc cag aaa ctc cct tcc ata 218
Thr Thr Pro Asn Trp Pro Asp Phe Ser Ser Gln Lys Leu Pro Ser Ile
15 20 25

gcc gca acg gcg gca gcc gca gca acc gct gga cct caa caa caa aac 266
Ala Ala Thr Ala Ala Ala Ala Thr Ala Gly Pro Gln Gln Gln Asn
30 35 40

cct tca tgg atg gat gag ttt ctc gac ttc tca gcg act cgc cgt ggg 314
Pro Ser Trp Met Asp Glu Phe Leu Asp Phe Ser Ala Thr Arg Arg Gly
45 50 55

act cac cgt cgt tct ata agc gac tcc att gct ttc ctt gaa cca cct 362
Thr His Arg Arg Ser Ile Ser Asp Ser Ile Ala Phe Leu Glu Pro Pro
60 65 70 75

tcc tcc gcc gtc gga aac cac cac ttc gat agg ttt gac gac gag caa 410
Ser Ser Gly Val Gly Asn His His Phe Asp Arg Phe Asp Asp Glu Gln
80 85 90

ttc atg tcc atg ttc aac gac gac gta cac aac aat aac cac aat cat 458

Phe Met Ser Met Phe Asn Asp Asp Val His Asn Asn Asn His Asn His	95	100	105	
cat cat cat cac agc atc aac ggc aat gtg ggt ccc acg cgt tca tcc	110	115	120	506
His His His Ser Ile Asn Gly Asn Val Gly Pro Thr Arg Ser Ser				
tcc aac acc tcc acg cgg tcc gat cat aat agc ctt agc gac gac gac	125	130	135	554
Ser Asn Thr Ser Thr Pro Ser Asp His Asn Ser Leu Ser Asp Asp Asp				
aac aac aaa gaa gca cca cgg tcc gat cat gat cat cac atg gac aat	140	145	150	602
Asn Asn Lys Glu Ala Pro Ser Asp His Asp His His Met Asp Asn				
aat gta gcc aat caa aac aac gcc gcc ggt aac aat tac aac gaa tca	160	165	170	650
Asn Val Ala Asn Gln Asn Asn Ala Ala Gly Asn Asn Tyr Asn Glu Ser				
gac gag gtc caa agc cag tgc aag acg gag cca caa gat ggt cgg tgg	175	180	185	698
Asp Glu Val Gln Ser Gln Cys Lys Thr Glu Pro Gln Asp Gly Pro Ser				
gcg aat caa aac tcc ggt gga agc tcc ggt aat cgt att cac gac cct	190	195	200	746
Ala Asn Gln Asn Ser Gly Gly Ser Ser Gly Asn Arg Ile His Asp Pro				
aaa agg gta aaa aga att tta gca aat agg caa tca gca cag aga tca	205	210	215	794
Lys Arg Val Lys Arg Ile Leu Ala Asn Arg Gln Ser Ala Gln Arg Ser				
agg gtg agg aaa ttg caa tac ata tca gag ott gaa agg agc gtt act	220	225	230	842
Arg Val Arg Lys Leu Gln Tyr Ile Ser Glu Leu Arg Ser Val Thr				
tca ttg cag act gaa gtg tca gtg tta tgg cca aga gtt cgg ttt ttg	240	245	250	890
Ser Leu Gln Thr Glu Val Ser Val Leu Ser Pro Arg Val Ala Phe Leu				
gat cat cag cga ttg ctt ctc aac gtc gac aat agt gct atc aag caa	255	260	265	938
Asp His Gln Arg Leu Leu Leu Asn Val Asp Asn Ser Ala Ile Lys Gln				
cga atc gca gct tta gca caa gat aag att ttc aaa gac gct cat caa	270	275	280	986
Arg Ile Ala Ala Leu Ala Gln Asp Lys Ile Phe Lys Asp Ala His Gln				
gaa gca ttg aag aga gaa ata gag aga ctt cga caa gta tat cat caa	285	290	295	1034
Glu Ala Leu Lys Arg Glu Ile Glu Arg Leu Arg Gln Val Tyr His Gln				
caa agc ctc aag aag atg gag aat aat gtc tcc gat caa tct cgg gcc	300	305	310	1082
Gln Ser Leu Lys Lys Met Glu Asn Asn Val Ser Asp Gln Ser Pro Ala				
gat atc aaa cgg tcc gtt gag aag gaa cag ctc ctc aat gtc taa				1127
Asp Ile Lys Pro Ser Val Glu Lys Glu Gln Leu Leu Asn Val				

320

325

agctgttcgt tcactaagat cttctctttc atggcgaaaa gattcttgac tataaaacct 1187
 ctttgtgtca agaaattaat ttatcaaaga agatggcctt ttttatttga tctaatacaca 1247
 tttttttaag ttgtgatgaa ttgtcttttg atgtatctgt tttttttttt ttttttt 1304

<210> 166 <211> 329 <212> PRT <213> Arabidopsis thaliana <400> 166

Met Ala Gln Leu Pro Pro Lys Ile Pro Thr Met Thr Thr Pro Asn Trp
 1 5 10 15

Pro Asp Phe Ser Ser Gln Lys Leu Pro Ser Ile Ala Ala Thr Ala Ala
 20 25 30

Ala Ala Ala Thr Ala Gly Pro Gln Gln Gln Asn Pro Ser Trp Met Asp
 35 40 45

Glu Phe Leu Asp Phe Ser Ala Thr Arg Arg Gly Thr His Arg Arg Ser
 50 55 60

Ile Ser Asp Ser Ile Ala Phe Leu Glu Pro Pro Ser Ser Gly Val Gly
 65 70 75 80

Asn His His Phe Asp Arg Phe Asp Asp Glu Gln Phe Met Ser Met Phe
 85 90 95

Asn Asp Asp Val His Asn Asn Asn His Asn His His His His His Ser
 100 105 110

Ile Asn Gly Asn Val Gly Pro Thr Arg Ser Ser Ser Asn Thr Ser Thr
 115 120 125

Pro Ser Asp His Asn Ser Leu Ser Asp Asp Asp Asn Asn Lys Glu Ala
 130 135 140

Pro Pro Ser Asp His Asp His His Met Asp Asn Asn Val Ala Asn Gln
 145 150 155 160

Asn Asn Ala Ala Gly Asn Asn Tyr Asn Glu Ser Asp Glu Val Gln Ser
 165 170 175

Gln Cys Lys Thr Glu Pro Gln Asp Gly Pro Ser Ala Asn Gln Asn Ser
 180 185 190

Gly Gly Ser Ser Gly Asn Arg Ile His Asp Pro Lys Arg Val Lys Arg
195 200 205

Ile Leu Ala Asn Arg Gln Ser Ala Gln Arg Ser Arg Val Arg Lys Leu
210 215 220

Gln Tyr Ile Ser Glu Leu Glu Arg Ser Val Thr Ser Leu Gln Thr Glu
225 230 235 240

Val Ser Val Leu Ser Pro Arg Val Ala Phe Leu Asp His Gln Arg Leu
245 250 255

Leu Leu Asn Val Asp Asn Ser Ala Ile Lys Gln Arg Ile Ala Ala Leu
260 265 270

Ala Gln Asp Lys Ile Phe Lys Asp Ala His Gln Glu Ala Leu Lys Arg
275 280 285

Glu Ile Glu Arg Leu Arg Gln Val Tyr His Gln Gln Ser Leu Lys Lys
290 295 300

Met Glu Asn Asn Val Ser Asp Gln Ser Pro Ala Asp Ile Lys Pro Ser
305 310 315 320

Val Glu Lys Glu Gln Leu Leu Asn Val
325

<210> 167 <211> 1148 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (241)..(966) <223> G1063

<400> 167
gttaaagaag atggatgggc cacaagttgc tatataaatc cttccacttc ttgttgtata 60
ctattgcttg agttctgatt gggcacagta gtaccattgc catttctctc acacataccg 120
tctctttctc tcctcatcaa tcctcaatca tccaaaagaa aaaaccctaa aatttcactt 180
gtaagctttt caccagtttc tctcataacc cattttatca gcttctccat atctttctct 240
atg gat tct gac ata atg aac atg atg atg cat cag atg gag aag ctt 288
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Ser Met Thr Asn Glu Pro Gly Phe Arg Tyr Gly Ser Gly Leu Leu Thr	
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Asp Lys Arg Asn Asn Ser Asn Asn Asn Asn Gly Thr Asn Met Ala	
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Ala Met Arg Glu Met Ile Phe Arg Ile Ala Val Met Gln Pro Ile His	
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Ile Asp Pro Glu Ala Val Lys Pro Pro Lys Arg Arg Asn Val Arg Ile	
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Ser Lys Asp Pro Gln Ser Val Ala Ala Arg His Arg Arg Glu Arg Ile	
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Ser Glu Arg Ile Arg Ile Leu Gln Arg Leu Val Pro Gly Gly Thr Lys	
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Leu Lys Lys Gln Val Gln Ser Leu Glu Glu Gln Ala Val Val Thr Gly	
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Gly Gly Gly Gly Gly Gly Gly Arg Val Leu Ile Gly Gly Gly Met	
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Thr Ala Ala Ser Gly Gly Gly Gly Gly Gly Gly Val Val Met Lys Gly	
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Cys Gly Thr Val Thr His Gln Met Val Gly Asn Ala Gln Ile Leu	
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Gly Gly Gly Gly Gly Gly Gly Gly Arg Val Leu Ile Gly Gly Gly Gly Met
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Met Gln Lys Pro
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aca tca agt atc tta aat gtc ata atg gac ggt gga gac agc gtc gga 165
Thr Ser Ser Ile Leu Asn Val Ile Met Asp Gly Gly Asp Ser Val Gly
5 10 15 20

gga gga gga gga gat gat cac cac cgt cac ctc cac cat cac cac cgc 213
Gly Gly Gly Gly Asp Asp His His Arg His Leu His His His Arg
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Pro Thr Phe Pro Phe Gln Leu Leu Gly Lys His Asp Pro Asp Asp Asn
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His Gln Gln Gln Pro Ser Pro Ser Ser Ser Ser Ser Leu Phe Ser Leu
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cat caa cac caa caa tta tct caa tcg caa cct caa tcg caa tcg caa 357
His Gln His Gln Gln Leu Ser Gln Ser Gln Pro Gln Ser Gln Ser Gln
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Lys Ser Gln Pro Gln Thr Thr Gln Lys Glu Leu Leu Gln Thr Gln Glu
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Glu Ser Ala Val Val Ala Ala Lys Lys Pro Pro Leu Lys Arg Ala Ser
105 110 115

acg aaa gac cga cac acg aaa gta gac gga aga ggg agg aga ata agg 501
Thr Lys Asp Arg His Thr Lys Val Asp Gly Arg Gly Arg Arg Ile Arg
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att ggt act ggt ggc ggc ggt gga gag cct gtt tgg acg ttt cct tcc 1221
 ile gly thr gly gly gly gly glu pro val trp thr phe pro ser
 360 365 370
 att aac acg gca gcg gca gcg tta tat aga agt ggc gtt tgg ggc gtt 1269
 ile asn thr ala ala ala ala leu tyr arg ser gly val ser gly val
 375 380 385
 cca agc ggc gcg gtt tct agc ggt tta cat ttt atg aat ttc gca gcg 1317
 pro ser gly ala val ser ser gly leu his phe met asn phe ala ala
 390 395 400
 cca atg gca ttt ctt act gga caa caa cag cta gca aca act agt aat 1365
 pro met ala phe leu thr gly gln gln gln leu ala thr thr ser asn
 405 410 415 420
 cat gag att aat gaa gat agt aat aat aat gaa gga gga aga agt gac 1413
 his glu ile asn glu asp ser asn asn asn glu gly gly arg ser asp
 425 430 435
 ggt ggt ggt gat cat cat aat aca cag aga cat cat cat cat caa caa 1461
 gly gly gly asp his his asn thr gln arg his his his gln gln
 440 445 450
 caa cat cat cat aat att ctc tcc ggc ttg aac cag tac gga cgg caa 1509
 gln his his his asn ile leu ser gly leu asn gln tyr gly arg gln
 455 460 465
 gtt tcc ggc gac tct caa gct agt gga tca ctt gga ggt ggt gat gag 1557
 val ser gly asp ser gln ala ser gly ser leu gly gly gly asp glu
 470 475 480
 gag gat cag caa gat tag acacacacaa aaacatttta atggtgggat 1605
 glu asp gln gln asp
 485
 tttctgccga cggcggtagc ggtgacggcg ttccggcggt gtgtaaaact tttgttttca 1665
 ccgtaatttt tttttatttt ctgtagtaat tttttttgct aagtaaaaaa aaaaaaaaaa 1725
 aaa 1728
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 Met Gln Lys Pro Thr Ser Ser Ile Leu Asn Val Ile Met Asp Gly Gly
 1 5 10 15
 Asp Ser Val Gly Gly Gly Gly Asp Asp His His Arg His Leu His
 20 25 30
 His His His Arg Pro Thr Phe Phe Phe Gln Leu Leu Gly Lys His Asp
 35 40 45

Pro Asp Asp Asn His Gln Gln Gln Pro Ser Pro Ser Ser Ser Ser Ser
50 55 60

Leu Phe Ser Leu His Gln His Gln Gln Leu Ser Gln Ser Gln Pro Gln
65 70 75 80

Ser Gln Ser Gln Lys Ser Gln Pro Gln Thr Thr Gln Lys Glu Leu Leu
85 90 95

Gln Thr Gln Glu Glu Ser Ala Val Val Ala Ala Lys Lys Pro Pro Leu
100 105 110

Lys Arg Ala Ser Thr Lys Asp Arg His Thr Lys Val Asp Gly Arg Gly
115 120 125

Arg Arg Ile Arg Met Pro Ala Leu Cys Ala Ala Arg Val Phe Gln Leu
130 135 140

Thr Arg Glu Leu Gly His Lys Ser Asp Gly Glu Thr Ile Glu Trp Leu
145 150 155 160

Leu Gln Gln Ala Glu Pro Ser Val Ile Ala Ala Thr Gly Thr Gly Thr
165 170 175

Ile Pro Ala Asn Phe Thr Ser Leu Asn Ile Ser Leu Arg Ser Ser Gly
180 185 190

Ser Ser Met Ser Leu Pro Ser His Phe Arg Ser Ala Ala Ser Thr Phe
195 200 205

Ser Pro Asn Asn Ile Phe Ser Pro Ala Met Leu Gln Gln Gln Gln
210 215 220

Gln Gln Arg Gly Gly Gly Val Gly Phe His His Pro His Leu Gln Gly
225 230 235 240

Arg Ala Pro Thr Ser Ser Leu Phe Pro Gly Ile Asp Asn Phe Thr Pro
245 250 255

Thr Thr Ser Phe Leu Asn Phe His Asn Pro Thr Lys Gln Glu Gly Asp
260 265 270

Gln Asp Ser Glu Glu Leu Asn Ser Glu Lys Lys Arg Arg Ile Gln Thr

275

280

285

Thr Ser Asp Leu His Gln Gln Gln Gln His Gln His Asp Gln Ile
290 295 300

Gly Gly Tyr Thr Leu Gln Ser Ser Asn Ser Gly Ser Thr Ala Thr Ala
305 310 315 320

Ala Ala Ala Gln Gln Ile Pro Gly Asn Phe Trp Met Val Ala Ala Ala
325 330 335

Ala Ala Ala Gly Gly Gly Gly Gly Asn Asn Asn Gln Thr Gly Gly Leu
340 345 350

Met Thr Ala Ser Ile Gly Thr Gly Gly Gly Gly Gly Glu Pro Val Trp
355 360 365

Thr Phe Pro Ser Ile Asn Thr Ala Ala Ala Ala Leu Tyr Arg Ser Gly
370 375 380

Val Ser Gly Val Pro Ser Gly Ala Val Ser Ser Gly Leu His Phe Met
385 390 395 400

Asn Phe Ala Ala Pro Met Ala Phe Leu Thr Gly Gln Gln Gln Leu Ala
405 410 415

Thr Thr Ser Asn His Glu Ile Asn Glu Asp Ser Asn Asn Asn Glu Gly
420 425 430

Gly Arg Ser Asp Gly Gly Gly Asp His His Asn Thr Gln Arg His His
435 440 445

His His Gln Gln Gln His His His Asn Ile Leu Ser Gly Leu Asn Gln
450 455 460

Tyr Gly Arg Gln Val Ser Gly Asp Ser Gln Ala Ser Gly Ser Leu Gly
465 470 475 480

Gly Gly Asp Glu Glu Asp Gln Gln Asp
485

<210> 171 <211> 1473 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (436)..(1371) <223> G1067

<400> 171
tctcaagctt ctctctctt ttttcccat agcacatcag aatcgctaaa tacgactcct 60
atgcaaaagaa gaagctactt cttctcttg cctaattaa tctacctaac tagggtttcc 120
tcttacctt catgagagag atcatttaac ataagtcacc tttttatat tttttgcttc 180
gtctttaatt tagttctgt cttggtctgt tctatatatt tgcggcttg cgtaaccgat 240
cacaccttaa tgctttagct attgtttcct caaaatcatg agttttgact tctcgatctg 300
agttttctt tctctctt acgtcttct tcacctagct accaatatat gaacgagcag 360
gatcaagaat cgagaaattg atttgagctg gcgaataagc agtggtggga tagggaatta 420
gtagatgcgg cgggc atg gaa ggc ggt tac gag caa ggc ggt gga gct tct 471
Met Glu Gly Gly Tyr Glu Gln Gly Gly Ala Ser
1 5 10
aga tac ttc cat aac ctc ttt aga ccg gag att cac cac caa cag ctt 519
Arg Tyr Phe His Asn Leu Phe Arg Pro Glu Ile His His Gln Gln Leu
15 20 25
caa ccg cag ggc ggg atc aat ctt atc gac cag cat cat cat cag cac 567
Gln Pro Gln Gly Gly Ile Asn Leu Ile Asp Gln His His His Gln His
30 35 40
cag caa cat caa caa caa caa ccg tgc gat gat tca aga gaa tct 615
Gln Gln His Gln Gln Gln Gln Pro Ser Asp Asp Ser Arg Glu Ser
45 50 55 60
gac cat tca aac aaa gat cat cat caa cag ggt cga ccc gat tca gac 663
Asp His Ser Asn Lys Asp His His Gln Gln Gly Arg Pro Asp Ser Asp
65 70 75
ccg aat aca tca agc tca gca ccg gga aaa cgt cca cgt gga cgt cca 711
Pro Asn Thr Ser Ser Ser Ala Pro Gly Lys Arg Pro Arg Gly Arg Pro
80 85 90
cca gga tct aag aac aaa gcc aag cca ccg atc ata gta act cgt gat 759
Pro Gly Ser Lys Asn Lys Ala Lys Pro Pro Ile Ile Val Thr Arg Asp
95 100 105
agc ccc aac gcg ctt aga tct cac gtt ctt gaa gta tct cct gga gct 807
Ser Pro Asn Ala Leu Arg Ser His Val Leu Glu Val Ser Pro Gly Ala
110 115 120
gac ata gtt gag agt gtt tcc acg tac gct agg agg aga ggg aga ggc 855
Asp Ile Val Glu Ser Val Ser Thr Tyr Ala Arg Arg Arg Gly Arg Gly
125 130 135 140
gtc tcc gtt tta gga gga aac ggc acc gta tct aac gtc act ctc cgt 903
Val Ser Val Leu Gly Gly Asn Gly Thr Val Ser Asn Val Thr Leu Arg
145 150 155
cag cca gtc act cct gga aat ggc ggt ggt gtg tcc gga gga gga gga 951

Gln Pro Val Thr Pro Gly Asn Gly Gly Gly Val Ser Gly Gly Gly Gly
160 165

gtt gtg act tta cat gga agg ttt gag att ctt tcg cta acg ggg act 999
Val Val Thr Leu His Gly Arg Phe Glu Ile Leu Ser Leu Thr Gly Thr
175 180 185

gtt ttg cca cct cct gea ccg cct ggt gcc ggt ggt ttg tct ata ttt 1047
Val Leu Pro Pro Pro Ala Pro Pro Gly Ala Gly Gly Leu Ser Ile Phe
190 195 200

tta gcc gga ggg caa ggt cag gtg gtc gga gga agc gtt gtg gct ccc 1095
Leu Ala Gly Gly Gln Gly Gln Val Val Gly Gly Ser Val Val Ala Pro
205 210 215 220

ctt att gca tca gct ccg gtt ata cta atg gcg gct tcg ttc tca aat 1143
Leu Ile Ala Ser Ala Pro Val Ile Leu Met Ala Ala Ser Phe Ser Asn
225 230 235

gcg gtt ttc gag aga cta ccg att gag gag gag gaa gaa gaa ggt ggt 1191
Ala Val Phe Glu Arg Leu Pro Ile Glu Glu Glu Glu Glu Gly Gly
240 245 250

ggg ggc gga gga gga gga gga gga gga cca ccg cag atg caa caa gct 1239
Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Pro Pro Gln Met Gln Gln Ala
255 260 265

cca tca gca tct ccg ccg tct gga gtg acc ggt cag gga cag tta gga 1287
Pro Ser Ala Ser Pro Pro Ser Gly Val Thr Gly Gln Gly Gln Leu Gly
270 275 280

ggg aat gtg ggt ggt tat ggg ttt tct ggt gat cct cat ttg ctt gga 1335
Gly Asn Val Gly Gly Tyr Gly Phe Ser Gly Asp Pro His Leu Leu Gly
285 290 295 300

tgg gga gct gga aca cct tca aga cca cct ttt taa ttgaatttta 1381
Trp Gly Ala Gly Thr Pro Ser Arg Pro Pro Phe
305 310

atgtccggaa atttatgtgt ttttatcacc ttgaggagtc gtctttcctt tgggatattt 1441

gggtgttaaat gtttagttga tatgcatatt tt 1473

<210> 172 <211> 311 <212> PRT <213> Arabidopsis thaliana <400> 172

Met Glu Gly Gly Tyr Glu Gln Gly Gly Gly Ala Ser Arg Tyr Phe His
1 5 10 15

Asn Leu Phe Arg Pro Glu Ile His His Gln Gln Leu Gln Pro Gln Gly
20 25 30

Gly Ile Asn Leu Ile Asp Gln His His His Gln His Gln Gln His Gln
35 40 45

Gln Gln Gln Gln Pro Ser Asp Asp Ser Arg Glu Ser Asp His Ser Asn
50 55 60

Lys Asp His His Gln Gln Gly Arg Pro Asp Ser Asp Pro Asn Thr Ser
65 70 75 80

Ser Ser Ala Pro Gly Lys Arg Pro Arg Gly Arg Pro Pro Gly Ser Lys
85 90 95

Asn Lys Ala Lys Pro Pro Ile Ile Val Thr Arg Asp Ser Pro Asn Ala
100 105 110

Leu Arg Ser His Val Leu Glu Val Ser Pro Gly Ala Asp Ile Val Glu
115 120 125

Ser Val Ser Thr Tyr Ala Arg Arg Arg Gly Arg Gly Val Ser Val Leu
130 135 140

Gly Gly Asn Gly Thr Val Ser Asn Val Thr Leu Arg Gln Pro Val Thr
145 150 155 160

Pro Gly Asn Gly Gly Gly Val Ser Gly Gly Gly Val Val Thr Leu
165 170 175

His Gly Arg Phe Glu Ile Leu Ser Leu Thr Gly Thr Val Leu Pro Pro
180 185 190

Pro Ala Pro Pro Gly Ala Gly Gly Leu Ser Ile Phe Leu Ala Gly Gly
195 200 205

Gln Gly Gln Val Val Gly Gly Ser Val Val Ala Pro Leu Ile Ala Ser
210 215 220

Ala Pro Val Ile Leu Met Ala Ala Ser Phe Ser Asn Ala Val Phe Glu
225 230 235 240

Arg Leu Pro Ile Glu Glu Glu Glu Glu Gly Gly Gly Gly Gly
245 250 255

Gly Gly Gly Gly Gly Pro Pro Gln Met Gln Gln Ala Pro Ser Ala Ser
260 265 270

Pro Pro Ser Gly Val Thr Gly Gln Gly Gln Leu Gly Gly Asn Val Gly
275 280 285

Gly Tyr Gly Phe Ser Gly Asp Pro His Leu Leu Gly Trp Gly Ala Gly
290 295 300

Thr Pro Ser Arg Pro Pro Phe
305 310

<210> 173 <211> 1295 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (170)..(1144) <223> G1070

<400> 173
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gttttgacag caaaataaga agcaaaaaaa aggtcaacta aaaaagatct gttcttagat 120
cactctcttc tttctttttt gatccaattc caccattgaa tcatagatc atg gat cca 178
Met Asp Pro
1
gta caa tct cat gga tca caa agc tct cta cct cct cct ttc cac gca 226
Val Gln Ser His Gly Ser Gln Ser Ser Leu Pro Pro Phe His Ala
5 10 15
aga gac ttt caa tta cat ctt caa caa cag caa caa gag ttc ttc ctc 274
Arg Asp Phe Gln Leu His Leu Gln Gln Gln Gln Glu Phe Phe Leu
20 25 30 35
cac cat cac cag caa caa aga aac caa acc gat ggt gac caa caa gga 322
His His His Gln Gln Gln Arg Asn Gln Thr Asp Gly Asp Gln Gln Gly
40 45 50
gga tca gga gga aac cga caa atc aag atg gat cgt gaa gag aca agc 370
Gly Ser Gly Gly Asn Arg Gln Ile Lys Met Asp Arg Glu Glu Thr Ser
55 60 65
gac aac ata gac aac ata gct aac aac agc ggt agt gaa ggt aaa gac 418
Asp Asn Ile Asp Asn Ile Ala Asn Asn Ser Gly Ser Glu Gly Lys Asp
70 75 80
ata gat ata cac ggt ggt tca gga gaa gga ggt ggt ggc tcc gga gga 466
Ile Asp Ile His Gly Gly Ser Gly Glu Gly Gly Gly Gly Ser Gly Gly
85 90 95
gat cat cag atg aca aga aga cca aga gga aga cca gcg gga tcc aag 514
Asp His Gln Met Thr Arg Arg Pro Arg Gly Arg Pro Ala Gly Ser Lys
100 105 110 115
aac aaa cca aaa cca ccg att atc atc aca ccg gac agc gca aac gcg 562
Asn Lys Pro Lys Pro Pro Ile Ile Ile Thr Arg Asp Ser Ala Asn Ala
120 125 130
ctt aga acc cac gtg atg gag atc gga gat ggc tgc gac tta gtc gaa 610

Leu Arg Thr His Val Met Glu Ile Gly Asp Gly Cys Asp Leu Val Glu	
135 140 145	
agc gtt gcc act ttt gca cga aga cgc caa cgc ggc gtt tgc gtt atg	658
Ser Val Ala Thr Phe Ala Arg Arg Gln Arg Gly Val Cys Val Met	
150 155 160	
agc ggt act gga aat gtt act aac gtc act ata cgt cag cct gga tct	706
Ser Gly Thr Gly Asn Val Thr Asn Val Thr Ile Arg Gln Pro Gly Ser	
165 170 175	
cat cct tct cct ggc tgc gta gtt agt ctt cac gga agg ttc gag att	754
His Pro Ser Pro Gly Ser Val Val Ser Leu His Gly Arg Phe Glu Ile	
180 185 190 195	
cta tct ctc tca gga tct ttt ctc cct cct ccg gct cct cct aca gcc	802
Leu Ser Leu Ser Gly Ser Phe Leu Pro Pro Ala Pro Pro Thr Ala	
200 205 210	
acc gga ttg agt gtt tac ctc gct gga gga caa gga cag gtg gtt gga	850
Thr Gly Leu Ser Val Tyr Leu Ala Gly Gly Gln Gly Gln Val Val Gly	
215 220 225	
gga agc gta gtt ggt ccg ttg tta tgt gct ggt cct gtc gtt gtc atg	898
Gly Ser Val Val Gly Pro Leu Leu Cys Ala Gly Pro Val Val Val Met	
230 235 240	
gct gcg tct ttt agc aat gcg gcg tac gaa agg ttg cct tta gag gaa	946
Ala Ala Ser Phe Ser Asn Ala Ala Tyr Glu Arg Leu Pro Leu Glu Glu	
245 250 255	
gat gag atg cag acg ccg gtt cat ggc gga gga gga gga gga tca ttg	994
Asp Glu Met Gln Thr Pro Val His Gly Gly Gly Gly Gly Ser Leu	
260 265 270 275	
gag tgc ccg cca atg atg gga caa caa ctg caa cat cag caa caa gct	1042
Glu Ser Pro Pro Met Met Gly Gln Gln Leu Gln His Gln Gln Ala	
280 285 290	
atg tca ggt cat caa ggg tta cca cct aat ctt ctt ggt tgc gtt cag	1090
Met Ser Gly His Gln Gly Leu Pro Pro Asn Leu Leu Gly Ser Val Gln	
295 300 305	
ttg cag cag caa cat gat cag tct tat tgg tca acg gga cga cca ccg	1138
Leu Gln Gln Gln His Asp Gln Ser Tyr Trp Ser Thr Gly Arg Pro Pro	
310 315 320	
tat tga tcaaatatac acacacactc ataatcgttg ctagnetagct aacgatgaat	1194
Tyr	
catgagttta gtggatatat atatgattaa aagagggttag cttatgaaca ttaataagag	1254
tttgattct atcagatttc attatgtttg ggtcatcgtt c	1295
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Met Asp Pro Val Gln Ser His Gly Ser Gln Ser Ser Leu Pro Pro Pro
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 Phe His Ala Arg Asp Phe Gln Leu His Leu Gln Gln Gln Gln Glu
 20 25 30

 Phe Phe Leu His His His Gln Gln Gln Arg Asn Gln Thr Asp Gly Asp
 35 40 45

 Gln Gln Gly Gly Ser Gly Gly Asn Arg Gln Ile Lys Met Asp Arg Glu
 50 55 60

 Glu Thr Ser Asp Asn Ile Asp Asn Ile Ala Asn Asn Ser Gly Ser Glu
 65 70 75 80

 Gly Lys Asp Ile Asp Ile His Gly Gly Ser Gly Glu Gly Gly Gly Gly
 85 90 95

 Ser Gly Gly Asp His Gln Met Thr Arg Arg Pro Arg Gly Arg Pro Ala
 100 105 110

 Gly Ser Lys Asn Lys Pro Lys Pro Pro Ile Ile Ile Thr Arg Asp Ser
 115 120 125

 Ala Asn Ala Leu Arg Thr His Val Met Glu Ile Gly Asp Gly Cys Asp
 130 135 140

 Leu Val Glu Ser Val Ala Thr Phe Ala Arg Arg Arg Gln Arg Gly Val
 145 150 155 160

 Cys Val Met Ser Gly Thr Gly Asn Val Thr Asn Val Thr Ile Arg Gln
 165 170 175

 Pro Gly Ser His Pro Ser Pro Gly Ser Val Val Ser Leu His Gly Arg
 180 185 190

 Phe Glu Ile Leu Ser Leu Ser Gly Ser Phe Leu Pro Pro Pro Ala Pro
 195 200 205

 Pro Thr Ala Thr Gly Leu Ser Val Tyr Leu Ala Gly Gly Gln Gly Gln
 210 215 220

Val Val Gly Gly Ser Val Val Gly Pro Leu Leu Cys Ala Gly Pro Val
225 230 235 240

Val Val Met Ala Ala Ser Phe Ser Asn Ala Ala Tyr Glu Arg Leu Pro
245 250 255

Leu Glu Glu Asp Glu Met Gln Thr Pro Val His Gly Gly Gly Gly Gly
260 265 270

Gly Ser Leu Glu Ser Pro Pro Met Met Gly Gln Gln Leu Gln His Gln
275 280 285

Gln Gln Ala Met Ser Gly His Gln Gly Leu Pro Pro Asn Leu Leu Gly
290 295 300

Ser Val Gln Leu Gln Gln His Asp Gln Ser Tyr Trp Ser Thr Gly
305 310 315 320

Arg Pro Pro Tyr

<210> 175 <211> 1084 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (19)..(876) <223> G1075

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Met Ala Gly Leu Asp Leu Gly Thr Thr Ser Arg
1 5 10

tac gtc cac aac gtc gat ggt ggc ggc ggc gga cag ttc acc acc gac 99
Tyr Val His Asn Val Asp Gly Gly Gly Gly Gln Phe Thr Thr Asp
15 20 25

aac cac cac gaa gat gac ggt ggc gct gga gga aac cac cat cat cac 147
Asn His His Glu Asp Asp Gly Gly Ala Gly Gly Asn His His His His
30 35 40

cat cat aat cat aat cac cat caa ggt tta gat tta ata gct tct aat 195
His His Asn His Asn His His Gln Gly Leu Asp Leu Ile Ala Ser Asn
45 50 55

gat aac tct gga cta ggc ggc ggt gga gga gga ggg agc ggt gac ctc 243
Asp Asn Ser Gly Leu Gly Gly Gly Gly Gly Gly Ser Gly Asp Leu
60 65 70 75

gtc atg cgt cgg cca cgt ggc cgt cca gct gga tcg aag aac aaa ccg 291
Val Met Arg Arg Pro Arg Gly Arg Pro Ala Gly Ser Lys Asn Lys Pro
80 85 90

aag ccg ccg gtg att gtc acg cgc gag agc gca aac act ctt agg gct 339

Lys	Pro	Pro	Val	Ile	Val	Thr	Arg	Glu	Ser	Ala	Asn	Thr	Leu	Arg	Ala		
			95					100					105				
cac	att	ctt	gaa	gtt	gga	agt	ggc	tgc	gac	gtt	ttc	gaa	tgt	atc	tcc	387	
His	Ile	Leu	Glu	Val	Gly	Ser	Gly	Cys	Asp	Val	Phe	Glu	Cys	Ile	Ser		
		110					115					120					
act	tac	gct	cgt	cgg	aga	cag	cgc	ggg	att	tgc	gtt	tta	tcc	ggg	acg	435	
Thr	Tyr	Ala	Arg	Arg	Arg	Gln	Arg	Gly	Ile	Cys	Val	Leu	Ser	Gly	Thr		
		125				130					135						
gga	acc	gtc	act	aac	gtc	agc	atc	cgt	cag	cct	acg	gcg	gcc	gga	gct	463	
Gly	Thr	Val	Thr	Asn	Val	Ser	Ile	Arg	Gln	Pro	Thr	Ala	Ala	Gly	Ala		
		140			145					150					155		
gtt	gtg	act	ctg	cgg	ggt	act	ttt	gag	att	ctt	tcc	ctc	tcc	gga	tct	531	
Val	Val	Thr	Leu	Arg	Gly	Thr	Phe	Glu	Ile	Leu	Ser	Leu	Ser	Gly	Ser		
				160				165						170			
ttt	ctt	ccg	cca	cct	gct	cct	cca	ggg	gcg	act	agc	ttg	acg	ata	ttc	579	
Phe	Leu	Pro	Pro	Pro	Ala	Pro	Pro	Gly	Ala	Thr	Ser	Leu	Thr	Ile	Phe		
			175					180					185				
ctc	gct	gga	gct	caa	gga	cag	gtc	gtc	gga	ggt	aac	gta	gtt	ggt	gag	627	
Leu	Ala	Gly	Ala	Gln	Gly	Gln	Val	Val	Gly	Gly	Asn	Val	Val	Gly	Glu		
		190					195					200					
tta	atg	gcg	gcg	ggg	ccg	gta	atg	gtc	atg	gca	gcg	tct	ttt	aca	aac	675	
Leu	Met	Ala	Ala	Gly	Pro	Val	Met	Val	Met	Ala	Ala	Ser	Phe	Thr	Asn		
		205				210						215					
gtg	gct	tac	gaa	agg	ttg	cct	ttg	gac	gag	cat	gag	gag	cac	ttg	caa	723	
Val	Ala	Tyr	Glu	Arg	Leu	Pro	Leu	Asp	Glu	His	Glu	Glu	His	Leu	Gln		
		220			225				230					235			
agt	ggc	ggc	ggc	gga	ggt	gga	ggg	aat	atg	tac	tcg	gaa	gcc	act	ggc	771	
Ser	Gly	Gly	Gly	Gly	Gly	Gly	Gly	Asn	Met	Tyr	Ser	Glu	Ala	Thr	Gly		
				240				245						250			
ggt	ggc	gga	ggg	ttg	cct	ttc	ttt	aat	ttg	ccg	atg	agt	atg	cct	cag	819	
Gly	Gly	Gly	Gly	Leu	Pro	Phe	Phe	Asn	Leu	Pro	Met	Ser	Met	Pro	Gln		
			255					260					265				
att	gga	gtt	gaa	agt	tgg	cag	ggg	aat	cac	gcc	ggc	gcc	ggt	agg	gct	867	
Ile	Gly	Val	Glu	Ser	Trp	Gln	Gly	Asn	His	Ala	Gly	Ala	Gly	Arg	Ala		
		270				275						280					
ccg	ttt	tag	caatttaaga	aactttaatt	gttttttcca	cttttttgtt										916	
Pro	Phe																
		285															
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35 40 45

His His Gln Gly Leu Asp Leu Ile Ala Ser Asn Asp Asn Ser Gly Leu
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Gly Gly Gly Gly Gly Gly Gly Ser Gly Asp Leu Val Met Arg Arg Pro
65 70 75 80

Arg Gly Arg Pro Ala Gly Ser Lys Asn Lys Pro Lys Pro Pro Val Ile
85 90 95

Val Thr Arg Glu Ser Ala Asn Thr Leu Arg Ala His Ile Leu Glu Val
100 105 110

Gly Ser Gly Cys Asp Val Phe Glu Cys Ile Ser Thr Tyr Ala Arg Arg
115 120 125

Arg Gln Arg Gly Ile Cys Val Leu Ser Gly Thr Gly Thr Val Thr Asn
130 135 140

Val Ser Ile Arg Gln Pro Thr Ala Ala Gly Ala Val Val Thr Leu Arg
145 150 155 160

Gly Thr Phe Glu Ile Leu Ser Leu Ser Gly Ser Phe Leu Pro Pro Pro
165 170 175

Ala Pro Pro Gly Ala Thr Ser Leu Thr Ile Phe Leu Ala Gly Ala Gln
180 185 190

Gly Gln Val Val Gly Gly Asn Val Val Gly Glu Leu Met Ala Ala Gly
195 200 205

Pro Val Met Val Met Ala Ala Ser Phe Thr Asn Val Ala Tyr Glu Arg
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Leu Pro Leu Asp Glu His Glu Glu His Leu Gln Ser Gly Gly Gly Gly
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Gly Gly Gly Asn Met Tyr Ser Glu Ala Thr Gly Gly Gly Gly Gly Leu
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Pro Phe Phe Asn Leu Pro Met Ser Met Pro Gln Ile Gly Val Glu Ser
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Glu Asn Glu Glu Ala Val Thr Arg Cys Lys Glu Arg Lys Gln Leu Met
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aaa gac gcc gtc act gct cgt aac gct ttc gcc gcc gct cac tca gct 150
Lys Asp Ala Val Thr Ala Arg Asn Ala Phe Ala Ala Ala His Ser Ala
25 30 35 40

tac gct atg gct ctt aaa aac acc gga gct gct ctt tcc gat tac tct 198
Tyr Ala Met Ala Leu Lys Asn Thr Gly Ala Ala Leu Ser Asp Tyr Ser
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cac ggc gag ttt tta gtc tct aat cac tgc tct tcc tcc gca gct gca 246
His Gly Glu Phe Leu Val Ser Asn His Ser Ser Ser Ser Ala Ala Ala
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gca atc gct tct act tct tct ctt ccc act gct ata tct cct cct ctt 294
Ala Ile Ala Ser Thr Ser Ser Leu Pro Thr Ala Ile Ser Pro Pro Leu
75 80 85

cct tct tcc acc gct ccg gtt tct aat tca acc gct tct tct tcc tcc 342
Pro Ser Ser Thr Ala Pro Val Ser Asn Ser Thr Ala Ser Ser Ser Ser
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gct gcg gtt cct cag ccg att cct gat act ctt cct cct cct cct cct 390
Ala Ala Val Pro Gln Pro Ile Pro Asp Thr Leu Pro Pro Pro Pro Pro
105 110 115 120

cca cca ccg ctt cct ctt caa cgt gct gct act atg ccg gag atg aac 438
Pro Pro Pro Leu Pro Leu Gln Arg Ala Ala Thr Met Pro Glu Met Asn
125 130 135

ggt aga tcc ggt ggt ggt cat gct ggt agt gga ctc aac gga att gaa Gly Arg Ser Gly Gly Gly His Ala Gly Ser Gly Leu Asn Gly Ile Glu 140 145 150	486
gaa gat gga gcc cta gat aac gat gat gat gac gat gat gat gat gat Glu Asp Gly Ala Leu Asp Asn Asp Asp Asp Asp Asp Asp Asp Asp 155 160 165	534
gac tct gaa atg gag aat cgt gat cgt ttg att agg aaa tcg aga agc Asp Ser Glu Met Glu Asn Arg Asp Arg Leu Ile Arg Lys Ser Arg Ser 170 175 180	582
cgt gga ggt agt act aga gga aat agg acg acg att gaa gat cat cat Arg Gly Gly Ser Thr Arg Gly Asn Arg Thr Thr Ile Glu Asp His His 185 190 195 200	630
ctt cag gag gag aaa gct ccg cca cct ccc cct ttg gcg aat tcg cgg Leu Gln Glu Glu Lys Ala Pro Pro Pro Pro Leu Ala Asn Ser Arg 205 210 215	678
cca att ccg ccg cca cgt cag cat cag cat caa cat cag caa cag caa Pro Ile Pro Pro Pro Arg Gln His Gln His Gln His Gln Gln Gln 220 225 230	726
caa caa cct ttc tac gat tac ttc ttc cct aat gtt gag aat atg cct Gln Gln Pro Phe Tyr Asp Tyr Phe Phe Pro Asn Val Glu Asn Met Pro 235 240 245	774
gga act act tta gaa gat act cct cca caa cca caa cca caa cca aca Gly Thr Thr Leu Glu Asp Thr Pro Pro Gln Pro Gln Pro Gln Thr 250 255 260	822
agg cct gtg cct cct caa cca cat tca cca gtc gtt act gag gat gac Arg Pro Val Pro Pro Gln Pro His Ser Pro Val Val Thr Glu Asp Asp 265 270 275 280	870
gaa gat gag gag gag gaa gag gag gaa gag gag gag gaa gag gag acg Glu Asp Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Thr 285 290 295	918
gtg att gaa cgg aaa cca ctg gtg gag gaa aga ccg aag aga gta gag Val Ile Glu Arg Lys Pro Leu Val Glu Glu Arg Pro Lys Arg Val Glu 300 305 310	966
gaa gtg acg att gaa ttg gaa aaa gtt act aat ttg aga ggg atg aag Glu Val Thr Ile Glu Leu Glu Lys Val Thr Asn Leu Arg Gly Met Lys 315 320 325	1014
aag agt aaa ggg ata ggg att ccc gga gag agg aga gga atg cga atg Lys Ser Lys Gly Ile Gly Ile Pro Gly Glu Arg Arg Gly Met Arg Met 330 335 340	1062
ccg gtg act gcg acg cat ttg gcg aat gta ttc att gag ctt gat gat Pro Val Thr Ala Thr His Leu Ala Asn Val Phe Ile Glu Leu Asp Asp 345 350 355 360	1110

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Asn Phe Leu Lys Ala Ser Glu Ser Ala His Asp Val Ser Lys Met Leu	
365 370 375	
gaa gct act agg ctc cat tac cat tct aat ttt gca gat aac cga gga	1206
Glu Ala Thr Arg Leu His Tyr His Ser Asn Phe Ala Asp Asn Arg Gly	
380 385 390	
cat att gat cac tct gct aga gtg atg cgt gta att aca tgg aat aga	1254
His Ile Asp His Ser Ala Arg Val Met Arg Val Ile Thr Trp Asn Arg	
395 400 405	
tca ttt aga gga ata cca aat gct gat gat ggg aaa gat gat gtt gat	1302
Ser Phe Asp Gly Ile Pro Asn Ala Asp Asp Gly Lys Asp Asp Val Asp	
410 415 420	
ttg gaa gag aat gaa act cat gct act gtt ctt gac aaa ttg cta gca	1350
Leu Glu Glu Asn Glu Thr His Ala Thr Val Leu Asp Lys Leu Leu Ala	
425 430 435 440	
tgg gaa aag aag ctc tat gac gaa gtc aag gct ggc gaa ctc atg aaa	1398
Trp Glu Lys Lys Leu Tyr Asp Glu Val Lys Ala Gly Glu Leu Met Lys	
445 450 455	
atc gag tac cag aaa aag gtt gct cat tta aat cgg gtg aag aaa cga	1446
Ile Glu Tyr Gln Lys Lys Val Ala His Leu Asn Arg Val Lys Lys Arg	
460 465 470	
ggt ggc cac tcg gat tca tta gag aga gct aaa gca gca gta agt cat	1494
Gly Gly His Ser Asp Ser Leu Glu Arg Ala Lys Ala Ala Val Ser His	
475 480 485	
ttg cat aca aga tat ata gtt gat atg caa tcc atg gac tcc aca gtt	1542
Leu His Thr Arg Tyr Ile Val Asp Met Gln Ser Met Asp Ser Thr Val	
490 495 500	
tca gaa atc aat cgt ctt agg gat gaa caa cta tac cta aag ctc gtt	1590
Ser Glu Ile Asn Arg Leu Arg Asp Glu Gln Leu Tyr Leu Lys Leu Val	
505 510 515 520	
cac ctt gtt gag gcg atg ggg aag atg tgg gaa atg atg caa ata cat	1638
His Leu Val Glu Ala Met Gly Lys Met Trp Glu Met Met Gln Ile His	
525 530 535	
cat caa aga caa gct gag atc tca aag gtg ttg aga tct cta gat gtt	1686
His Gln Arg Gln Ala Glu Ile Ser Lys Val Leu Arg Ser Leu Asp Val	
540 545 550	
tca caa gcg gtg aaa gaa aca aat gat cat cat cac gaa cgc acc atc	1734
Ser Gln Ala Val Lys Glu Thr Asn Asp His His His Glu Arg Thr Ile	
555 560 565	
cag ctc ttg gca gtg gtt caa gaa tgg cac acg cag ttt tgc agg atg	1782
Gln Leu Leu Ala Val Val Gln Glu Trp His Thr Gln Phe Cys Arg Met	
570 575 580	
ata gat cat cag aaa gaa tac ata aaa gca ctt ggc gga tgg cta aag	1830

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Ile Asp His Gln Lys Glu Tyr Ile Lys Ala Leu Gly Gly Trp Leu Lys	585	590	595	600
cta aat ctc atc cct atc gaa agc aca ctc aag gag aaa gta tct tcg	1878			
Leu Asn Leu Ile Pro Ile Glu Ser Thr Leu Lys Glu Lys Val Ser Ser		605	610	615
cct cct cga gtt ccc aat ccc gca atc caa aaa ctc ctc cac gct tgg	1926			
Pro Pro Arg Val Pro Asn Pro Ala Ile Gln Lys Leu Leu His Ala Trp		620	625	630
tat gac cgt tta gac aaa atc ccc gac gaa atg gct aaa agt gcc ata	1974			
Tyr Asp Arg Leu Asp Lys Ile Pro Asp Glu Met Ala Lys Ser Ala Ile		635	640	645
atc aat ttc gca gcg gtt gta agc acg ata atg cag cag caa gaa gac	2022			
Ile Asn Phe Ala Ala Val Val Ser Thr Ile Met Gln Gln Glu Asp		650	655	660
gag ata agt ctc aga aac aaa tgc gaa gag aca aga aaa gaa ttg gga	2070			
Glu Ile Ser Leu Arg Asn Lys Cys Glu Glu Thr Arg Lys Glu Leu Gly		665	670	675
aga aaa att aga cag ttt gag gat tgg tac cac aaa tac atc cag aag	2118			
Arg Lys Ile Arg Gln Phe Glu Asp Trp Tyr His Lys Tyr Ile Gln Lys		685	690	695
aga gga ccg gag ggg atg aat ccg gat gaa gcg gat aac gat cat aat	2166			
Arg Gly Pro Glu Gly Met Asn Pro Asp Glu Ala Asp Asn Asp His Asn		700	705	710
gat gag gtc gct gtg agg caa ttc aat gta gaa caa att aag aag agg	2214			
Asp Glu Val Ala Val Arg Gln Phe Asn Val Glu Gln Ile Lys Lys Arg		715	720	725
ttg gaa gaa gaa gaa gaa gct tac cat aga caa agc cat caa gtt aga	2262			
Leu Glu Glu Glu Glu Glu Ala Tyr His Arg Gln Ser His Gln Val Arg		730	735	740
gag aag tca ctg gct agt ctt cga act cgc ctc ccc gag ctt ttt cag	2310			
Glu Lys Ser Leu Ala Ser Leu Arg Thr Arg Leu Pro Glu Leu Phe Gln		745	750	755
gca atg tcc gag gtt gcg tat tca tgt tcg gat atg tat aga gct ata	2358			
Ala Met Ser Glu Val Ala Tyr Ser Cys Ser Asp Met Tyr Arg Ala Ile		765	770	775
acg tat gcg agt aag cgg caa agc caa agc gaa cgg cat cag aaa cct	2406			
Thr Tyr Ala Ser Lys Arg Gln Ser Gln Ser Glu Arg His Gln Lys Pro		780	785	790
agc cag gga cag agt tcg taa gaactaatgt aagatcagag taatgtcttc	2457			
Ser Gln Gly Gln Ser Ser		795		
ttcttctttg atcttgaata ttttaagcaca cacatacata caacgtatag cttaatcttt	2517			

atcattgctt tcttatatta aggttttggc ttttgtaaga aggtttctta catatgagat 2577
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 aaatagagtt gcatttgta attttg 2663

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Cys Lys Glu Arg Lys Gln Leu Met Lys Asp Ala Val Thr Ala Arg Asn
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Ala Phe Ala Ala Ala His Ser Ala Tyr Ala Met Ala Leu Lys Asn Thr
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Gly Ala Ala Leu Ser Asp Tyr Ser His Gly Glu Phe Leu Val Ser Asn
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His Ser Ser Ser Ser Ala Ala Ala Ala Ile Ala Ser Thr Ser Ser Leu
 65 70 75 80

Pro Thr Ala Ile Ser Pro Pro Leu Pro Ser Thr Ala Pro Val Ser
 85 90 95

Asn Ser Thr Ala Ser Ser Ser Ser Ala Ala Val Pro Gln Pro Ile Pro
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Asp Thr Leu Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Leu Gln Arg
 115 120 125

Ala Ala Thr Met Pro Glu Met Asn Gly Arg Ser Gly Gly Gly His Ala
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Gly Ser Gly Leu Asn Gly Ile Glu Glu Asp Gly Ala Leu Asp Asn Asp
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Asp Asp Asp Asp Asp Asp Asp Asp Ser Glu Met Glu Asn Arg Asp
 165 170 175

Arg Leu Ile Arg Lys Ser Arg Ser Arg Gly Gly Ser Thr Arg Gly Asn
 180 185 190

Arg Thr Thr Ile Glu Asp His His Leu Gln Glu Glu Lys Ala Pro Pro
195 200 205

Pro Pro Pro Leu Ala Asn Ser Arg Pro Ile Pro Pro Arg Gln His
210 215 220

Gln His Gln His Gln Gln Gln Gln Gln Pro Phe Tyr Asp Tyr Phe
225 230 235 240

Phe Pro Asn Val Glu Asn Met Pro Gly Thr Thr Leu Glu Asp Thr Pro
245 250 255

Pro Gln Pro Gln Pro Gln Pro Thr Arg Pro Val Pro Pro Gln Pro His
260 265 270

Ser Pro Val Val Thr Glu Asp Asp Glu Asp Glu Glu Glu Glu Glu
275 280 285

Glu Glu Glu Glu Glu Glu Glu Thr Val Ile Glu Arg Lys Pro Leu Val
290 295 300

Glu Glu Arg Pro Lys Arg Val Glu Glu Val Thr Ile Glu Leu Glu Lys
305 310 315 320

Val Thr Asn Leu Arg Gly Met Lys Lys Ser Lys Gly Ile Gly Ile Pro
325 330 335

Gly Glu Arg Arg Gly Met Arg Met Pro Val Thr Ala Thr His Leu Ala
340 345 350

Asn Val Phe Ile Glu Leu Asp Asp Asn Phe Leu Lys Ala Ser Glu Ser
355 360 365

Ala His Asp Val Ser Lys Met Leu Glu Ala Thr Arg Leu His Tyr His
370 375 380

Ser Asn Phe Ala Asp Asn Arg Gly His Ile Asp His Ser Ala Arg Val
385 390 395 400

Met Arg Val Ile Thr Trp Asn Arg Ser Phe Arg Gly Ile Pro Asn Ala
405 410 415

Asp Asp Gly Lys Asp Asp Val Asp Leu Glu Glu Asn Glu Thr His Ala

420

425

430

Thr Val Leu Asp Lys Leu Leu Ala Trp Glu Lys Lys Leu Tyr Asp Glu
435 440 445

Val Lys Ala Gly Glu Leu Met Lys Ile Glu Tyr Gln Lys Lys Val Ala
450 455 460

His Leu Asn Arg Val Lys Lys Arg Gly Gly His Ser Asp Ser Leu Glu
465 470 475 480

Arg Ala Lys Ala Ala Val Ser His Leu His Thr Arg Tyr Ile Val Asp
485 490 495

Met Gln Ser Met Asp Ser Thr Val Ser Glu Ile Asn Arg Leu Arg Asp
500 505 510

Glu Gln Leu Tyr Leu Lys Leu Val His Leu Val Glu Ala Met Gly Lys
515 520 525

Met Trp Glu Met Met Gln Ile His His Gln Arg Gln Ala Glu Ile Ser
530 535 540

Lys Val Leu Arg Ser Leu Asp Val Ser Gln Ala Val Lys Glu Thr Asn
545 550 555 560

Asp His His His Glu Arg Thr Ile Gln Leu Leu Ala Val Val Gln Glu
565 570 575

Trp His Thr Gln Phe Cys Arg Met Ile Asp His Gln Lys Glu Tyr Ile
580 585 590

Lys Ala Leu Gly Gly Trp Leu Lys Leu Asn Leu Ile Pro Ile Glu Ser
595 600 605

Thr Leu Lys Glu Lys Val Ser Ser Pro Pro Arg Val Pro Asn Pro Ala
610 615 620

Ile Gln Lys Leu Leu His Ala Trp Tyr Asp Arg Leu Asp Lys Ile Pro
625 630 635 640

Asp Glu Met Ala Lys Ser Ala Ile Ile Asn Phe Ala Ala Val Val Ser
645 650 655

Thr Ile Met Gln Gln Gln Glu Asp Glu Ile Ser Leu Arg Asn Lys Cys
660 665 670

Glu Glu Thr Arg Lys Glu Leu Gly Arg Lys Ile Arg Gln Phe Glu Asp
675 680 685

Trp Tyr His Lys Tyr Ile Gln Lys Arg Gly Pro Glu Gly Met Asn Pro
690 695 700

Asp Glu Ala Asp Asn Asp His Asn Asp Glu Val Ala Val Arg Gln Phe
705 710 715 720

Asn Val Glu Gln Ile Lys Lys Arg Leu Glu Glu Glu Glu Ala Tyr
725 730 735

His Arg Gln Ser His Gln Val Arg Glu Lys Ser Leu Ala Ser Leu Arg
740 745 750

Thr Arg Leu Pro Glu Leu Phe Gln Ala Met Ser Glu Val Ala Tyr Ser
755 760 765

Cys Ser Asp Met Tyr Arg Ala Ile Thr Tyr Ala Ser Lys Arg Gln Ser
770 775 780

Gln Ser Glu Arg His Gln Lys Pro Ser Gln Gly Gln Ser Ser
785 790 795

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ccg ccg cct ccg ccg cca tcc acg acc ttc aca agc cct ata ttc cca 96
Pro Pro Pro Pro Pro Ser Thr Thr Phe Thr Ser Pro Ile Phe Pro
20 25 30

cga aca agc tct tcc gcc acc aat ttc ccc att ctg gcc atc gca gtg 144
Arg Thr Ser Ser Ser Gly Thr Asn Phe Pro Ile Leu Ala Ile Ala Val
35 40 45

att gga atc tta gcc act gcg ttc tta ctt gta agt tac tac atc ttc 192
Ile Gly Ile Leu Ala Thr Ala Phe Leu Leu Val Ser Tyr Tyr Ile Phe
50 55 60

gtg atc aaa tgc tgt ctt aat tgg cac caa atc gac atc ttt cgc cgc	240
Val Ile Lys Cys Cys Leu Asn Trp His Gln Ile Asp Ile Phe Arg Arg	
65 70 75 80	
cgc aga cga agc agt gac caa aac cct cta atg att tac tct cct cat	288
Arg Arg Arg Ser Ser Asp Gln Asn Pro Leu Met Ile Tyr Ser Pro His	
85 90 95	
gag gta aac aga gga cta gac gaa tcc gcc att aga gct atc cca gtc	336
Glu Val Asn Arg Gly Leu Asp Glu Ser Ala Ile Arg Ala Ile Pro Val	
100 105 110	
ttc aaa ttc aag aag aga gac gtt gtt gca gga gaa gaa gat cag agt	384
Phe Lys Phe Lys Lys Arg Asp Val Val Ala Gly Glu Asp Gln Ser	
115 120 125	
aag aac tct caa gaa tgc tct gtt tgt tta aac gag ttt caa gaa gac	432
Lys Asn Ser Gln Glu Cys Ser Val Cys Leu Asn Glu Phe Gln Glu Asp	
130 135 140	
gag aag cta agg att att cct aac tgc tgc cac gtg ttt cac att gat	480
Glu Lys Leu Arg Ile Ile Pro Asn Cys Cys His Val Phe His Ile Asp	
145 150 155 160	
tgc att gat atc tgg ctt cag ggc aac gca aat tgt ccc ttg tgc aga	528
Cys Ile Asp Ile Trp Leu Gln Gly Asn Ala Asn Cys Pro Leu Cys Arg	
165 170 175	
acc agc gtt tct tgc gaa gca agt ttc act ctt gac cta atc tct gca	576
Thr Ser Val Ser Cys Glu Ala Ser Phe Thr Leu Asp Leu Ile Ser Ala	
180 185 190	
ccg agc tct cct cgg gag aat agc cct cat tct cgg aac agg aat ctc	624
Pro Ser Ser Pro Arg Glu Asn Ser Pro His Ser Arg Asn Arg Asn Leu	
195 200 205	
gaa ccc ggc ctg gtt cta gga ggc gat gat gac ttc gtc gtc ata gag	672
Glu Pro Gly Leu Val Leu Gly Gly Asp Asp Asp Phe Val Val Ile Glu	
210 215 220	
ctt ggg gcc agt aat ggt aac aac aga gaa agc gtg aga aac ata gac	720
Leu Gly Ala Ser Asn Gly Asn Asn Arg Glu Ser Val Arg Asn Ile Asp	
225 230 235 240	
ttc ctt acg gag caa gaa agg gtt acc tgc aat gag gtc tgc acc gga	768
Phe Leu Thr Glu Gln Glu Arg Val Thr Asn Glu Val Ser Thr Gly	
245 250 255	
aac agc ccg aaa tgc gtg agt cct ttg cct ata aag ttt ggt aat cgg	816
Asn Ser Pro Lys Ser Val Ser Pro Leu Pro Ile Lys Phe Gly Asn Arg	
260 265 270	
gga atg tat aag aaa gaa agg aaa ttt cac aaa gtg acg agt atg gga	864
Gly Met Tyr Lys Lys Glu Arg Lys Phe His Lys Val Thr Ser Met Gly	
275 280 285	

gac gaa tgt atc gat act aga ggc aaa gat ggt cat ttt ggt gaa att 912
 Asp Glu Cys Ile Asp Thr Arg Gly Lys Asp Gly His Phe Gly Glu Ile
 290 295 300

cag ccc ata aga aga tcg atc tcg atg gat tca tca gtg gat cgt cag 960
 Gln Pro Ile Arg Arg Ser Ile Ser Met Asp Ser Ser Val Asp Arg Gln
 305 310 315 320

ctg tac ttg gcg gtc caa gag gaa atc agc cgg aga aac agg cag att 1008
 Leu Tyr Leu Ala Val Gln Glu Glu Ile Ser Arg Arg Asn Arg Gln Ile
 325 330 335

ccg gta gct gga gac ggt gaa gat agt agc agt agt ggt ggt ggt aat 1056
 Pro Val Ala Gly Asp Gly Glu Asp Ser Ser Ser Ser Gly Gly Gly Asn
 340 345 350

agc aga gtc atg aag aga tgt ttc ttc tct ttt gga agt agt aga act 1104
 Ser Arg Val Met Lys Arg Cys Phe Phe Ser Phe Gly Ser Arg Thr
 355 360 365

tca aaa agt tct tca ata tta cct gtt tat ttg gaa ccc taa 1146
 Ser Lys Ser Ser Ser Ile Leu Pro Val Tyr Leu Glu Pro
 370 375 380

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 20 25 30
 Arg Thr Ser Ser Ser Gly Thr Asn Phe Pro Ile Leu Ala Ile Ala Val
 35 40 45
 Ile Gly Ile Leu Ala Thr Ala Phe Leu Leu Val Ser Tyr Tyr Ile Phe
 50 55 60
 Val Ile Lys Cys Cys Leu Asn Trp His Gln Ile Asp Ile Phe Arg Arg
 65 70 75 80
 Arg Arg Arg Ser Ser Asp Gln Asn Pro Leu Met Ile Tyr Ser Pro His
 85 90 95
 Glu Val Asn Arg Gly Leu Asp Glu Ser Ala Ile Arg Ala Ile Pro Val
 100 105 110
 Phe Lys Phe Lys Lys Arg Asp Val Val Ala Gly Glu Glu Asp Gln Ser
 115 120 125

Lys Asn Ser Gln Glu Cys Ser Val Cys Leu Asn Glu Phe Gln Glu Asp
 130 135 140

Glu Lys Leu Arg Ile Ile Pro Asn Cys Cys His Val Phe His Ile Asp
 145 150 155 160

Cys Ile Asp Ile Trp Leu Gln Gly Asn Ala Asn Cys Pro Leu Cys Arg
 165 170 175

Thr Ser Val Ser Cys Glu Ala Ser Phe Thr Leu Asp Leu Ile Ser Ala
 180 185 190

Pro Ser Ser Pro Arg Glu Asn Ser Pro His Ser Arg Asn Arg Asn Leu
 195 200 205

Glu Pro Gly Leu Val Leu Gly Gly Asp Asp Asp Phe Val Val Ile Glu
 210 215 220

Leu Gly Ala Ser Asn Gly Asn Asn Arg Glu Ser Val Arg Asn Ile Asp
 225 230 235 240

Phe Leu Thr Glu Gln Glu Arg Val Thr Ser Asn Glu Val Ser Thr Gly
 245 250 255

Asn Ser Pro Lys Ser Val Ser Pro Leu Pro Ile Lys Phe Gly Asn Arg
 260 265 270

Gly Met Tyr Lys Lys Glu Arg Lys Phe His Lys Val Thr Ser Met Gly
 275 280 285

Asp Glu Cys Ile Asp Thr Arg Gly Lys Asp Gly His Phe Gly Glu Ile
 290 295 300

Gln Pro Ile Arg Arg Ser Ile Ser Met Asp Ser Ser Val Asp Arg Gln
 305 310 315 320

Leu Tyr Leu Ala Val Gln Glu Glu Ile Ser Arg Arg Asn Arg Gln Ile
 325 330 335

Pro Val Ala Gly Asp Gly Glu Asp Ser Ser Ser Ser Gly Gly Gly Asn
 340 345 350

Ser Arg Val Met Lys Arg Cys Phe Phe Ser Phe Gly Ser Ser Arg Thr
355 360 365

Ser Lys Ser Ser Ser Ile Leu Pro Val Tyr Leu Glu Pro
370 375 380

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atg caa cca aca tcc gtc ggt agt agc ggc ggt ggt gac gac gga gga 108
Met Gln Pro Thr Ser Val Gly Ser Ser Gly Gly Gly Asp Asp Gly Gly
1 5 10 15

ggc aga gga gga gga gga ggg cta agt aga agt gga cta tct cgg atc 156
Gly Arg Gly Gly Gly Gly Gly Leu Ser Arg Ser Gly Leu Ser Arg Ile
20 25 30

cgt tca gct cca gcg act tgg ctt gaa gct tta ctt gag gaa gat gaa 204
Arg Ser Ala Pro Ala Thr Trp Leu Glu Ala Leu Leu Glu Glu Asp Glu
35 40 45

gaa gag tct ttg aaa cct aat ctt ggt ctc acc gat ttg ctt acc ggg 252
Glu Glu Ser Leu Lys Pro Asn Leu Gly Leu Thr Asp Leu Leu Thr Gly
50 55 60

aac tcg aac gat tta ccg aca agt cgc ggc tcg ttc gag ttc ccg att 300
Asn Ser Asn Asp Leu Pro Thr Ser Arg Gly Ser Phe Glu Phe Pro Ile
65 70 75 80

cct gtt gag caa ggg ttg tat caa caa ggt ggg ttt cac cga cag aat 348
Pro Val Glu Gln Gly Leu Tyr Gln Gln Gly Gly Phe His Arg Gln Asn
85 90 95

agt act ccg gcg gat ttt ctt agt ggt tct gat gga ttt atc caa agc 396
Ser Thr Pro Ala Asp Phe Leu Ser Gly Ser Asp Gly Phe Ile Gln Ser
100 105 110

ttt ggg att cag gcg aat tac gat tac tta tcg ggg aat atc gat gtt 444
Phe Gly Ile Gln Ala Asn Tyr Asp Tyr Leu Ser Gly Asn Ile Asp Val
115 120 125

tct ccg gga agt aag cgg tct aga gaa atg gaa gca ctc ttc tct tct 492
Ser Pro Gly Ser Lys Arg Ser Arg Glu Met Glu Ala Leu Phe Ser Ser
130 135 140

cct gag ttt act tct caa atg aaa gga gag caa agc agc ggt caa gtt 540
Pro Glu Phe Thr Ser Gln Met Lys Gly Glu Gln Ser Ser Gly Gln Val
145 150 155 160

cct acc gga gta tca agc atg tcg gat atg aac atg gag aac ctt atg 588
Pro Thr Gly Val Ser Ser Met Ser Asp Met Asn Met Glu Asn Leu Met

	165	170	175	
	gag gac tct gtt gct ttt agg gtt cgg gct aaa cgt ggt tgc gca act			636
	Glu Asp Ser Val Ala Phe Arg Val Arg Ala Lys Arg Gly Cys Ala Thr			
	180	185	190	
	cat ccc cgc agc att gcc gag agg gta cga agg acg cgg att agt gat			684
	His Pro Arg Ser Ile Ala Glu Arg Val Arg Arg Thr Arg Ile Ser Asp			
	195	200	205	
	cgg ata agg aag cta caa gag ctt gta cct aac atg gac aag caa acc			732
	Arg Ile Arg Lys Leu Gln Glu Leu Val Pro Asn Met Asp Lys Gln Thr			
	210	215	220	
	aac act gca gac atg tta gaa gaa gca gta gaa tac gtg aaa gtt ctt			780
	Asn Thr Ala Asp Met Leu Glu Glu Ala Val Glu Tyr Val Lys Val Leu			
	225	230	235	240
	caa agg cag atc cag gag tta aca gaa gaa cag aag agg tgc aca tgc			828
	Gln Arg Gln Ile Gln Glu Leu Thr Glu Glu Gln Lys Arg Cys Thr Cys			
	245	250	255	
	ata cct aag gaa gaa caa taa ggtttgctcc tgatttgctt tatatttgct			879
	Ile Pro Lys Glu Gln			
	260			
	taacggcaat gatctgatcg aaaaattcga aagatgatct tagcttgaat ttgatggat			939
	gtcatgttga aaagtatatt atttgataaa tggatgtagg tgtaatatata aatttttga			999
	caataatgaa gaaagttaaa aagaattaat gaaaacatat attctttatg atataaaaaa			1059
	aaaaa			1064
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	Gly Arg Gly Gly Gly Gly Gly Leu Ser Arg Ser Gly Leu Ser Arg Ile			
	20 25 30			
	Arg Ser Ala Pro Ala Thr Trp Leu Glu Ala Leu Leu Glu Glu Asp Glu			
	35 40 45			
	Glu Glu Ser Leu Lys Pro Asn Leu Gly Leu Thr Asp Leu Leu Thr Gly			
	50 55 60			
	Asn Ser Asn Asp Leu Pro Thr Ser Arg Gly Ser Phe Glu Phe Pro Ile			
	65 70 75 80			

Pro Val Glu Gln Gly Leu Tyr Gln Gln Gly Gly Phe His Arg Gln Asn
85 95

Ser Thr Pro Ala Asp Phe Leu Ser Gly Ser Asp Gly Phe Ile Gln Ser
100 105 110

Phe Gly Ile Gln Ala Asn Tyr Asp Tyr Leu Ser Gly Asn Ile Asp Val
115 120 125

Ser Pro Gly Ser Lys Arg Ser Arg Glu Met Glu Ala Leu Phe Ser Ser
130 135 140

Pro Glu Phe Thr Ser Gln Met Lys Gly Glu Gln Ser Ser Gly Gln Val
145 150 155 160

Pro Thr Gly Val Ser Ser Met Ser Asp Met Asn Met Glu Asn Leu Met
165 170 175

Glu Asp Ser Val Ala Phe Arg Val Arg Ala Lys Arg Gly Cys Ala Thr
180 185 190

His Pro Arg Ser Ile Ala Glu Arg Val Arg Arg Thr Arg Ile Ser Asp
195 200 205

Arg Ile Arg Lys Leu Gln Glu Leu Val Pro Asn Met Asp Lys Gln Thr
210 215 220

Asn Thr Ala Asp Met Leu Glu Glu Ala Val Glu Tyr Val Lys Val Leu
225 230 235 240

Gln Arg Gln Ile Gln Glu Leu Thr Glu Glu Gln Lys Arg Cys Thr Cys
245 250 255

Ile Pro Lys Glu Glu Gln
260

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acc tca gat cag atg ttg tac tcg ttt ctt gcc gga aac gaa gtc ggc 105

Thr	Ser	Asp	Gln	Met	Leu	Tyr	Ser	Phe	Leu	Ala	Gly	Asn	Glu	Val	Gly		
5					10				15						20		
ggt	gga	ggg	tac	tgc	gtc	tcc	ggc	gac	tac	atg	acg	act	atg	cag	agc	153	
Gly	Gly	Gly	Tyr	Cys	Val	Ser	Gly	Asp	Tyr	Met	Thr	Thr	Met	Gln	Ser		
			25					30					35				
tta	tgt	ggg	tct	tcg	tcg	tcg	acg	tca	tcg	tat	tac	cca	ctg	gcg	atc	201	
Leu	Cys	Gly	Ser	Ser	Ser	Ser	Thr	Ser	Ser	Tyr	Tyr	Pro	Leu	Ala	Ile		
			40				45					50					
tcc	ggc	atc	gga	gaa	acg	atg	gct	caa	gac	aga	gct	tta	gct	gct	ttg	249	
Ser	Gly	Ile	Gly	Glu	Thr	Met	Ala	Gln	Asp	Arg	Ala	Leu	Ala	Ala	Leu		
		55					60					65					
agg	aac	cac	aaa	gaa	gct	gag	aga	aga	agg	aga	gag	agg	atc	aat	tct	297	
Arg	Asn	His	Lys	Glu	Ala	Glu	Arg	Arg	Arg	Arg	Glu	Arg	Ile	Asn	Ser		
		70				75					80						
cat	ctc	aac	aag	ctt	cgt	aac	gta	ctc	tct	tgt	aat	tct	aag	acc	gat	345	
His	Leu	Asn	Lys	Leu	Arg	Asn	Val	Leu	Ser	Cys	Asn	Ser	Lys	Thr	Asp		
		85			90					95					100		
aaa	gcc	aca	ctg	ctc	gcc	aaa	gta	gtt	caa	cga	gtc	aga	gaa	ctt	aaa	393	
Lys	Ala	Thr	Leu	Leu	Ala	Lys	Val	Val	Gln	Arg	Val	Arg	Glu	Leu	Lys		
			105						110					115			
cag	caa	acc	cta	gag	acc	tcc	gac	tcc	gac	caa	aca	tta	tta	cca	tca	441	
Gln	Gln	Thr	Leu	Glu	Thr	Ser	Asp	Ser	Asp	Gln	Thr	Leu	Leu	Pro	Ser		
			120				125						130				
gag	acc	gac	gaa	att	agt	gtt	cta	cac	ttt	gga	gac	tat	tca	aac	gac	489	
Glu	Thr	Asp	Glu	Ile	Ser	Val	Leu	His	Phe	Gly	Asp	Tyr	Ser	Asn	Asp		
		135				140						145					
ggt	cat	ata	atc	ttc	aaa	gcc	tct	cta	tgt	tgt	gaa	gat	aga	tca	gat	537	
Gly	His	Ile	Ile	Phe	Lys	Ala	Ser	Leu	Cys	Cys	Glu	Asp	Arg	Ser	Asp		
		150				155					160						
ctc	ttg	ccg	gac	ctt	atg	gag	att	ctc	aag	tct	ctt	aac	atg	aag	act	585	
Leu	Leu	Pro	Asp	Leu	Met	Glu	Ile	Leu	Lys	Ser	Leu	Asn	Met	Lys	Thr		
		165			170					175					180		
ctc	cga	gct	gag	atg	gta	acc	att	ggt	ggt	cgg	aca	aga	agt	gtt	ctt	633	
Leu	Arg	Ala	Glu	Met	Val	Thr	Ile	Gly	Gly	Arg	Thr	Arg	Ser	Val	Leu		
			185					190						195			
gtc	gta	gct	gct	gac	aaa	gag	atg	cac	ggc	gtc	gag	tct	gtg	cat	ttt	681	
Val	Val	Ala	Ala	Asp	Lys	Glu	Met	His	Gly	Val	Glu	Ser	Val	His	Phe		
			200					205					210				
ttg	caa	aat	gct	ctc	aag	tcg	ctg	ctt	gag	cgg	tca	agc	aag	tcg	ttg	729	
Leu	Gln	Asn	Ala	Leu	Lys	Ser	Leu	Leu	Glu	Arg	Ser	Ser	Lys	Ser	Leu		
			215				220					225					
atg	gaa	cgt	agt	tct	ggt	ggt	gga	gga	gga	gaa	cgg	tca	aag	cgg	cgt	777	
Met	Glu	Arg	Ser	Ser	Gly	Gly	Gly	Gly	Gly	Glu	Arg	Ser	Lys	Arg	Arg		

230 235 240
 cgt gcg ctg gat cac atc ata atg gtg tga aatgatgaga attgagcaca 827
 Arg Ala Leu Asp His Ile Ile Met Val
 245 250
 ctaaaaagtc tataattgat taatatatat aggggatgat cataattaac ttggttataa 887
 ttaccaaaac cttttttatt cctctttaat aatatatatg ttatatgggt ttagtacta 947
 agtcttgga gtgtaagcaa atgttgtaag taggtttggt gtgttctttt tcttttcttt 1007
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 Asn Glu Val Gly Gly Gly Gly Tyr Cys Val Ser Gly Asp Tyr Met Thr
 20 25 30
 Thr Met Gln Ser Leu Cys Gly Ser Ser Ser Ser Thr Ser Ser Tyr Tyr
 35 40 45
 Pro Leu Ala Ile Ser Gly Ile Gly Glu Thr Met Ala Gln Asp Arg Ala
 50 55 60
 Leu Ala Ala Leu Arg Asn His Lys Glu Ala Glu Arg Arg Arg Arg Glu
 65 70 75 80
 Arg Ile Asn Ser His Leu Asn Lys Leu Arg Asn Val Leu Ser Cys Asn
 85 90 95
 Ser Lys Thr Asp Lys Ala Thr Leu Leu Ala Lys Val Val Gln Arg Val
 100 105 110
 Arg Glu Leu Lys Gln Gln Thr Leu Glu Thr Ser Asp Ser Asp Gln Thr
 115 120 125
 Leu Leu Pro Ser Glu Thr Asp Glu Ile Ser Val Leu His Phe Gly Asp
 130 135 140
 Tyr Ser Asn Asp Gly His Ile Ile Phe Lys Ala Ser Leu Cys Cys Glu
 145 150 155 160

Asp Arg Ser Asp Leu Leu Pro Asp Leu Met Glu Ile Leu Lys Ser Leu
165 170 175

Asn Met Lys Thr Leu Arg Ala Glu Met Val Thr Ile Gly Gly Arg Thr
180 185 190

Arg Ser Val Leu Val Val Ala Ala Asp Lys Glu Met His Gly Val Glu
195 200 205

Ser Val His Phe Leu Gln Asn Ala Leu Lys Ser Leu Leu Glu Arg Ser
210 215 220

Ser Lys Ser Leu Met Glu Arg Ser Ser Gly Gly Gly Gly Glu Arg
225 230 235 240

Ser Lys Arg Arg Arg Ala Leu Asp His Ile Ile Met Val
245 250

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<222> (56)..(1957) <223> G1202

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Gly Asn Tyr Arg Trp Pro Ser Lys Leu Ser Lys Leu Ser Leu Arg Ala
5 10 15

aaa caa acg aat ctg tac cgc gtc att cta atc gcg atc ctc tgc gtc 154
Lys Gln Thr Asn Leu Tyr Arg Val Ile Leu Ile Ala Ile Leu Cys Val
20 25 30

acc ttt tac ttc gtc gga gta tgg caa cac tcc gcc aga gga atc tca 202
Thr Phe Tyr Phe Val Gly Val Trp Gln His Ser Gly Arg Gly Ile Ser
35 40 45

cgc tct tcc att tct aac cac gag ctc acg tcc gtg ccc tgc acg ttt 250
Arg Ser Ser Ile Ser Asn His Glu Leu Thr Ser Val Pro Cys Thr Phe
50 55 60 65

cct cac caa acc aca ccg att ctc aac ttc gcc tcc cgt cac aca gcc 298
Pro His Gln Thr Thr Pro Ile Leu Asn Phe Ala Ser Arg His Thr Ala
70 75 80

cct gac ctt cct ccg acg ata acg gac gcg cgt gtt gtt caa atc ccg 346
Pro Asp Leu Pro Pro Thr Ile Thr Asp Ala Arg Val Val Gln Ile Pro
85 90 95

tcg tgc ggc gtt gaa ttc tcg gag tac acg ccc tgc gag ttc gtg aat 394

Ser	Cys	Gly	Val	Glu	Phe	Ser	Glu	Tyr	Thr	Pro	Cys	Glu	Phe	Val	Asn	
		100					105					110				
cgg	tct	ttg	aat	ttc	cca	aga	gag	agg	ctt	ata	tac	aga	gag	aga	cac	442
Arg	Ser	Leu	Asn	Phe	Pro	Arg	Glu	Arg	Leu	Ile	Tyr	Arg	Glu	Arg	His	
		115				120					125					
tgt	ccg	gaa	aaa	cac	gag	ata	gtc	agg	tgt	cgg	att	cca	gcg	ccg	tac	490
Cys	Pro	Glu	Lys	His	Glu	Ile	Val	Arg	Cys	Ile	Pro	Ala	Pro	Tyr		
		130			135					140				145		
ggt	tac	agt	tta	cct	ttt	cgg	tgg	cgg	gag	agc	cgt	gac	gtg	gcg	tgg	538
Gly	Tyr	Ser	Leu	Pro	Phe	Arg	Trp	Pro	Glu	Ser	Arg	Asp	Val	Ala	Trp	
				150				155					160			
ttt	gct	aac	gtg	ccg	cat	acg	gaa	cta	acg	gtg	gag	aag	aag	aat	cag	586
Phe	Ala	Asn	Val	Pro	His	Thr	Glu	Leu	Thr	Val	Glu	Lys	Lys	Asn	Gln	
			165					170				175				
aac	tgg	gta	agg	tat	gag	aag	gat	agg	ttt	tta	ttt	cct	ggg	ggg	ggg	634
Asn	Trp	Val	Arg	Tyr	Glu	Lys	Asp	Arg	Phe	Leu	Phe	Pro	Gly	Gly	Gly	
		180					185					190				
acg	atg	ttt	cca	cgt	gga	gct	gat	gct	tac	atc	gac	gag	atc	gga	cgg	682
Thr	Met	Phe	Pro	Arg	Gly	Ala	Asp	Ala	Tyr	Ile	Asp	Glu	Ile	Gly	Arg	
		195				200				205						
ttg	ata	aat	ctc	aaa	gat	gga	tca	att	cgg	aca	gcc	att	gat	act	gga	730
Leu	Ile	Asn	Leu	Lys	Asp	Gly	Ser	Ile	Arg	Thr	Ala	Ile	Asp	Thr	Gly	
	210				215					220				225		
tgt	ggg	gta	gcg	agc	ttt	ggg	gcg	tat	cta	atg	tcg	agg	aac	ata	gta	778
Cys	Gly	Val	Ala	Ser	Phe	Gly	Ala	Tyr	Leu	Met	Ser	Arg	Asn	Ile	Val	
				230					235					240		
acg	atg	tcg	ttt	gca	cca	aga	gac	aca	cac	gaa	gct	cag	gtt	cag	ttc	826
Thr	Met	Ser	Phe	Ala	Pro	Arg	Asp	Thr	His	Glu	Ala	Gln	Val	Gln	Phe	
			245					250				255				
gca	ctt	gag	aga	gga	gtc	cct	gcc	atc	ata	gga	gtg	tta	gcc	tct	att	874
Ala	Leu	Glu	Arg	Gly	Val	Pro	Ala	Ile	Ile	Gly	Val	Leu	Ala	Ser	Ile	
		260					265					270				
agg	ctc	cca	ttt	ccg	gcc	aga	gcc	ttc	gac	att	gct	cat	tcg	tct	cga	922
Arg	Leu	Pro	Phe	Pro	Ala	Ala	Ala	Phe	Asp	Ile	Ala	His	Cys	Ser	Arg	
		275				280					285					
tgt	ctc	att	cct	tgg	ggc	caa	tac	aac	ggg	acg	tat	ctc	ata	gaa	gtg	970
Cys	Leu	Ile	Pro	Trp	Gly	Gln	Tyr	Asn	Gly	Thr	Tyr	Leu	Ile	Glu	Val	
		290			295					300				305		
gat	agg	gta	ctg	aga	ccg	ggg	ggg	tat	tgg	att	ttg	tcg	gga	ccg	ccg	1018
Asp	Arg	Val	Leu	Arg	Pro	Gly	Gly	Tyr	Trp	Ile	Leu	Ser	Gly	Pro	Pro	
				310					315				320			
att	aac	tgg	cag	aga	cac	tgg	aag	ggt	tgg	gaa	aga	act	aga	gac	gat	1066
Ile	Asn	Trp	Gln	Arg	His	Trp	Lys	Gly	Trp	Glu	Arg	Thr	Arg	Asp	Asp	

325	330	335	
ctc aac tcg gag cag tct cag atc gag agg gtg gct agg agc ttg tgt Leu Asn Ser Glu Gln Ser Gln Ile Glu Arg Val Ala Arg Ser Leu Cys 340 345 350			1114
tgg agg aaa ttg gtg cag aga gag gat ctt gcg gtt tgg cag aaa cct Trp Arg Lys Leu Val Gln Arg Glu Asp Leu Ala Val Trp Gln Lys Pro 355 360 365			1162
acc aac cat gtt cac tgt aag cgc aat cgg ata gct tta gga cgc cct Thr Asn His Val His Cys Lys Arg Asn Arg Ile Ala Leu Gly Arg Pro 370 375 380 385			1210
ccg ttc tgc cac cgg aca cta ccc aac cag gcc tgg tac act aag ctt Pro Phe Cys His Arg Thr Leu Pro Asn Gln Gly Trp Tyr Thr Lys Leu 390 395 400			1258
gaa acc tgt ttg acg ccg ttg ccg gaa gta aca gga tct gag atc aaa Glu Thr Cys Leu Thr Pro Leu Pro Glu Val Thr Gly Ser Glu Ile Lys 405 410 415			1306
gaa gta gcg ggt gga cag ttg gcg aga tgg cct gag aga ttg aat gct Glu Val Ala Gly Gly Gln Leu Ala Arg Trp Pro Glu Arg Leu Asn Ala 420 425 430			1354
ctt cct ccg agg atc aaa agt gga agc ttg gaa ggg atc act gag gat Leu Pro Pro Arg Ile Lys Ser Gly Ser Leu Glu Gly Ile Thr Glu Asp 435 440 445			1402
gaa ttt gtc agc aac aca gag aaa tgg cag aga aga gtg tct tac tac Glu Phe Val Ser Asn Thr Glu Lys Trp Gln Arg Arg Val Ser Tyr Tyr 450 455 460 465			1450
aag aaa tat gac caa cag cta gcg gag acg gga aga tac aga aac ttt Lys Lys Tyr Asp Gln Gln Leu Ala Glu Thr Gly Arg Tyr Arg Asn Phe 470 475 480			1498
ctc gac atg aac gct cat ctt gga ggt ttc gcc tca gcc tta gtc gat Leu Asp Met Asn Ala His Leu Gly Gly Phe Ala Ser Ala Leu Val Asp 485 490 495			1546
gat cct gta tgg gtc atg aat gtt gtc ccc gtg gag gcc agt gtt aac Asp Pro Val Trp Val Met Asn Val Val Pro Val Glu Ala Ser Val Asn 500 505 510			1594
acc ctt gga gtt atc tat gag cga gga ttg att gga acg tat caa aac Thr Leu Gly Val Ile Tyr Glu Arg Gly Leu Ile Gly Thr Tyr Gln Asn 515 520 525			1642
tgg tgt gaa gca atg tca act tac cca agg aca tac gat ttc atc cat Trp Cys Glu Ala Met Ser Thr Tyr Pro Arg Thr Tyr Asp Phe Ile His 530 535 540 545			1690
gcc gat tcg gtg ttc agt ctg tac aaa gac aga tgt gac atg gaa gat Ala Asp Ser Val Phe Ser Leu Tyr Lys Asp Arg Cys Asp Met Glu Asp 550 555 560			1738

atc ttg cta gaa atg gac agg att cta aga cca aag gga agc gtg atc 1786
 Ile Leu Leu Glu Met Asp Arg Ile Leu Arg Pro Lys Gly Ser Val Ile
 565 570 575

atc aga gac gac att gat gtg cta acc aaa gtg aag aag att aca gat 1834
 Ile Arg Asp Asp Ile Asp Val Leu Thr Lys Val Lys Lys Ile Thr Asp
 580 585 590

gcg atg caa tgg gaa ggg agg ata gga gat cat gaa aac gga cct ctt 1882
 Ala Met Gln Trp Glu Gly Arg Ile Gly Asp His Glu Asn Gly Pro Leu
 595 600 605

gaa aga gag aag att ttg ttt ctt gtg aag gag tac tgg acc gca cct 1930
 Glu Arg Glu Lys Ile Leu Phe Leu Val Lys Glu Tyr Trp Thr Ala Pro
 610 615 620 625

gcg cct gat cag tca tca gat cct tga tcaagcttgg aataattcat 1977
 Ala Pro Asp Gln Ser Ser Asp Pro
 630

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Val Thr Phe Tyr Phe Val Gly Val Trp Gln His Ser Gly Arg Gly Ile
 35 40 45

Ser Arg Ser Ser Ile Ser Asn His Glu Leu Thr Ser Val Pro Cys Thr
 50 55 60

Phe Pro His Gln Thr Thr Pro Ile Leu Asn Phe Ala Ser Arg His Thr
 65 70 75 80

Ala Pro Asp Leu Pro Pro Thr Ile Thr Asp Ala Arg Val Val Gln Ile
 85 90 95

Pro Ser Cys Gly Val Glu Phe Ser Glu Tyr Thr Pro Cys Glu Phe Val
 100 105 110

Asn Arg Ser Leu Asn Phe Pro Arg Glu Arg Leu Ile Tyr Arg Glu Arg
 115 120 125
 His Cys Pro Glu Lys His Glu Ile Val Arg Cys Arg Ile Pro Ala Pro
 130 135 140
 Tyr Gly Tyr Ser Leu Pro Phe Arg Trp Pro Glu Ser Arg Asp Val Ala
 145 150 155 160
 Trp Phe Ala Asn Val Pro His Thr Glu Leu Thr Val Glu Lys Lys Asn
 165 170 175
 Gln Asn Trp Val Arg Tyr Glu Lys Asp Arg Phe Leu Phe Pro Gly Gly
 180 185 190
 Gly Thr Met Phe Pro Arg Gly Ala Asp Ala Tyr Ile Asp Glu Ile Gly
 195 200 205
 Arg Leu Ile Asn Leu Lys Asp Gly Ser Ile Arg Thr Ala Ile Asp Thr
 210 215 220
 Gly Cys Gly Val Ala Ser Phe Gly Ala Tyr Leu Met Ser Arg Asn Ile
 225 230 235 240
 Val Thr Met Ser Phe Ala Pro Arg Asp Thr His Glu Ala Gln Val Gln
 245 250 255
 Phe Ala Leu Glu Arg Gly Val Pro Ala Ile Ile Gly Val Leu Ala Ser
 260 265 270
 Ile Arg Leu Pro Phe Pro Ala Arg Ala Phe Asp Ile Ala His Cys Ser
 275 280 285
 Arg Cys Leu Ile Pro Trp Gly Gln Tyr Asn Gly Thr Tyr Leu Ile Glu
 290 295 300
 Val Asp Arg Val Leu Arg Pro Gly Gly Tyr Trp Ile Leu Ser Gly Pro
 305 310 315 320
 Pro Ile Asn Trp Gln Arg His Trp Lys Gly Trp Glu Arg Thr Arg Asp
 325 330 335

Asp Leu Asn Ser Glu Gln Ser Gln Ile Glu Arg Val Ala Arg Ser Leu
340 345 350

Cys Trp Arg Lys Leu Val Gln Arg Glu Asp Leu Ala Val Trp Gln Lys
355 360 365

Pro Thr Asn His Val His Cys Lys Arg Asn Arg Ile Ala Leu Gly Arg
370 375 380

Pro Pro Phe Cys His Arg Thr Leu Pro Asn Gln Gly Trp Tyr Thr Lys
385 390 395 400

Leu Glu Thr Cys Leu Thr Pro Leu Pro Glu Val Thr Gly Ser Glu Ile
405 410 415

Lys Glu Val Ala Gly Gly Gln Leu Ala Arg Trp Pro Glu Arg Leu Asn
420 425 430

Ala Leu Pro Pro Arg Ile Lys Ser Gly Ser Leu Glu Gly Ile Thr Glu
435 440 445

Asp Glu Phe Val Ser Asn Thr Glu Lys Trp Gln Arg Arg Val Ser Tyr
450 455 460

Tyr Lys Lys Tyr Asp Gln Gln Leu Ala Glu Thr Gly Arg Tyr Arg Asn
465 470 475 480

Phe Leu Asp Met Asn Ala His Leu Gly Gly Phe Ala Ser Ala Leu Val
485 490 495

Asp Asp Pro Val Trp Val Met Asn Val Val Pro Val Glu Ala Ser Val
500 505 510

Asn Thr Leu Gly Val Ile Tyr Glu Arg Gly Leu Ile Gly Thr Tyr Gln
515 520 525

Asn Trp Cys Glu Ala Met Ser Thr Tyr Pro Arg Thr Tyr Asp Phe Ile
530 535 540

His Ala Asp Ser Val Phe Ser Leu Tyr Lys Asp Arg Cys Asp Met Glu
545 550 555 560

Asp Ile Leu Leu Glu Met Asp Arg Ile Leu Arg Pro Lys Gly Ser Val

565

570

575

Ile Ile Arg Asp Asp Ile Asp Val Leu Thr Lys Val Lys Lys Ile Thr
580 585 590

Asp Ala Met Gln Trp Glu Gly Arg Ile Gly Asp His Glu Asn Gly Pro
595 600 605

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Pro Ala Pro Asp Gln Ser Ser Asp Pro
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caaccataag acaaaacaac gaacgaggaa gagagagaga gaagatatata tctctaataca 120

cg atg cag gag ata ata ccg gat ttt ctt gaa gag tgt gaa ttt gtc 167
Met Gln Glu Ile Ile Pro Asp Phe Leu Glu Cys Glu Phe Val
1 5 10 15

gac act tca cta gcc gga gat gat cta ttt gcc atc tta gag agt ctt 215
Asp Thr Ser Leu Ala Gly Asp Asp Leu Phe Ala Ile Leu Glu Ser Leu
20 25 30

gaa ggt gcc gga gag ata tct ccg aca gct gca tct aca cct aaa gat 263
Glu Gly Ala Gly Glu Ile Ser Pro Thr Ala Ala Ser Thr Pro Lys Asp
35 40 45

gga acc aca agt tcc aag gag tta gtt aag gat caa gat tat gaa aac 311
Gly Thr Thr Ser Ser Lys Glu Leu Val Lys Asp Gln Asp Tyr Glu Asn
50 55 60

tca tct cct aag agg aaa aag Caa aga cta gaa acc agg aaa gaa gag 359
Ser Ser Pro Lys Arg Lys Lys Gln Arg Leu Glu Thr Arg Lys Glu Glu
65 70 75

gac gaa gaa gaa gaa gac gga gac gga gaa gca gaa gaa gat aat aag 407
Asp Glu Glu Glu Glu Asp Gly Asp Gly Glu Ala Glu Glu Asp Asn Lys
80 85 90 95

caa gat ggg caa Caa aag atg tct cat gta acc gtg gaa cgt aac cgg 455
Gln Asp Gly Gln Gln Lys Met Ser His Val Thr Val Glu Arg Asn Arg
100 105 110

aga aag caa atg aac gag cac tta acc gtt ttg ogt tct ctt atg cct 503
Arg Lys Gln Met Asn Glu His Leu Thr Val Leu Arg Ser Leu Met Pro

	115	120	125	
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	gtg gag tac ata agc gag tta caa caa gtt ctc caa tct ttg gaa gcc Val Glu Tyr Ile Ser Glu Leu Gln Gln Val Leu Gln Ser Leu Glu Ala 145 150 155			599
	aag aaa caa cgt aaa acc tac gcc gaa gtc cta agc ccg aga gtt gtc Lys Lys Gln Arg Lys Thr Tyr Ala Glu Val Leu Ser Pro Arg Val Val 160 165 170 175			647
	ccg agc cct cgt cct tca ccg cct gtt cta agc cca aga aaa ccg cct Pro Ser Pro Arg Pro Ser Pro Pro Val Leu Ser Pro Arg Lys Pro Pro 180 185 190			695
	ctt agc ccg cgc atc aac cac cac cag att cac cac cac cta ctt ctc Leu Ser Pro Arg Ile Asn His His Gln Ile His His His Leu Leu Leu 195 200 205			743
	cct ccc ata agt cct cga aca cct cag cca aca agc cca tac ccg gcc Pro Pro Ile Ser Pro Arg Thr Pro Gln Pro Thr Ser Pro Tyr Arg Ala 210 215 220			791
	att cca ccg caa cta cca ctc atc cca cag cct ccg ctt cgc tct tac Ile Pro Pro Gln Leu Pro Leu Ile Pro Gln Pro Pro Leu Arg Ser Tyr 225 230 235			839
	agc tca ttg gcc agt tgc agc agc tta gga gat cca cct cca tac tct Ser Ser Leu Ala Ser Cys Ser Ser Leu Gly Asp Pro Pro Pro Tyr Ser 240 245 250 255			887
	cct gct tca tct tct tca tct cct tca gtt agt agt aac cat gag agt Pro Ala Ser Ser Ser Ser Ser Pro Ser Val Ser Ser Asn His Glu Ser 260 265 270			935
	agt gtg atc aat gag ctt gtt gct aac tca aaa tcg gct ttg gct gat Ser Val Ile Asn Glu Leu Val Ala Asn Ser Lys Ser Ala Leu Ala Asp 275 280 285			983
	gtg gaa gtg aag ttt tca gga gct aac gtg ctg ctc aaa acg gtg tcg Val Glu Val Lys Phe Ser Gly Ala Asn Val Leu Leu Lys Thr Val Ser 290 295 300			1031
	cat aag atc ccg gga caa gtt atg aag ata att gct gct ctt gaa gat His Lys Ile Pro Gly Gln Val Met Lys Ile Ile Ala Ala Leu Glu Asp 305 310 315			1079
	ttg gct ctt gag att ctt cag gtt aat att aac acc gtc gac gaa acc Leu Ala Leu Glu Ile Leu Gln Val Asn Ile Asn Thr Val Asp Glu Thr 320 325 330 335			1127
	atg ctt aat tct ttc acc atc aag att gga att gag tgc caa cta agt Met Leu Asn Ser Phe Thr Ile Lys Ile Gly Ile Glu Cys Gln Leu Ser 340 345 350			1175

gca gaa gaa ctg gct caa caa att cag caa aca ttc tgc tag 1217
 Ala Glu Glu Leu Ala Gln Gln Ile Gln Gln Thr Phe Cys
 355 360
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 aaaaataaaa ttgttatcta aagttttaat caaatattga ttaattataa ctaatatag 1397
 tataagttag ttttaaaagt tatcagcttc ataacagcca tcgtcatgtt tactttcttt 1457
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 Gly Ala Gly Glu Ile Ser Pro Thr Ala Ala Ser Thr Pro Lys Asp Gly
 35 40 45
 Thr Thr Ser Ser Lys Glu Leu Val Lys Asp Gln Asp Tyr Glu Asn Ser
 50 55 60
 Ser Pro Lys Arg Lys Lys Gln Arg Leu Glu Thr Arg Lys Glu Glu Asp
 65 70 75 80
 Glu Glu Glu Glu Asp Gly Asp Gly Glu Ala Glu Glu Asp Asn Lys Gln
 85 90 95
 Asp Gly Gln Gln Lys Met Ser His Val Thr Val Glu Arg Asn Arg Arg
 100 105 110
 Lys Gln Met Asn Glu His Leu Thr Val Leu Arg Ser Leu Met Pro Cys
 115 120 125
 Phe Tyr Val Lys Arg Gly Asp Gln Ala Ser Ile Ile Gly Gly Val Val
 130 135 140

Glu Tyr Ile Ser Glu Leu Gln Gln Val Leu Gln Ser Leu Glu Ala Lys
 145 150 155 160

Lys Gln Arg Lys Thr Tyr Ala Glu Val Leu Ser Pro Arg Val Val Pro
 165 170 175

Ser Pro Arg Pro Ser Pro Pro Val Leu Ser Pro Arg Lys Pro Pro Leu
 180 185 190

Ser Pro Arg Ile Asn His His Gln Ile His His His Leu Leu Leu Pro
 195 200 205

Pro Ile Ser Pro Arg Thr Pro Gln Pro Thr Ser Pro Tyr Arg Ala Ile
 210 215 220

Pro Pro Gln Leu Pro Leu Ile Pro Gln Pro Pro Leu Arg Ser Tyr Ser
 225 230 235 240

Ser Leu Ala Ser Cys Ser Ser Leu Gly Asp Pro Pro Pro Tyr Ser Pro
 245 250 255

Ala Ser Ser Ser Ser Ser Pro Ser Val Ser Ser Asn His Glu Ser Ser
 260 265 270

Val Ile Asn Glu Leu Val Ala Asn Ser Lys Ser Ala Leu Ala Asp Val
 275 280 285

Glu Val Lys Phe Ser Gly Ala Asn Val Leu Leu Lys Thr Val Ser His
 290 295 300

Lys Ile Pro Gly Gln Val Met Lys Ile Ile Ala Ala Leu Glu Asp Leu
 305 310 315 320

Ala Leu Glu Ile Leu Gln Val Asn Ile Asn Thr Val Asp Glu Thr Met
 325 330 335

Leu Asn Ser Phe Thr Ile Lys Ile Gly Ile Glu Cys Gln Leu Ser Ala
 340 345 350

Glu Glu Leu Ala Gln Gln Ile Gln Gln Thr Phe Cys
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gaaacttttg acgagtgggt tcaaatttct ggtgaaaacg accagcaaga agttgttcaa 180
caacttcaca aggttctgcg accatttctt ctcgaggtt taaaatcaga tgtagagaaa 240
ggcttacctc caaaaaagga gacaatactc aaagttggc atg tct caa atg caa 294
Met Ser Gln Met Gln
1 5
aaa cag tac tac aag gct tta ctg cag aag gat ctt gaa gtg gtt aat 342
Lys Gln Tyr Tyr Lys Ala Leu Leu Gln Lys Asp Leu Glu Val Val Asn
10 15 20
ggg ggt gga gaa cgc aaa cgt ctg ttg aac ata gca atg caa ttg cgg 390
Gly Gly Gly Glu Arg Lys Arg Leu Leu Asn Ile Ala Met Gln Leu Arg
25 30 35
aaa tgc tgc aat cac cct tat ctc ttc cag ggt gcg gag cct ggt ccc 438
Lys Cys Cys Asn His Pro Tyr Leu Phe Gln Gly Ala Glu Pro Gly Pro
40 45 50
cca tat act aca gga gat cac ctt gta aca aac gca ggt aag atg gtt 486
Pro Tyr Thr Thr Gly Asp His Leu Val Thr Asn Ala Gly Lys Met Val
55 60 65
ctc tta gat aaa ttg cta cct aag ttg aag gat cga gat tca agg gtt 534
Leu Leu Asp Lys Leu Leu Pro Lys Leu Lys Asp Arg Asp Ser Arg Val
70 75 80 85
ctg ata ttt tct cag atg aca agg ctt ttg gat att ctc gag gat tac 582
Leu Ile Phe Ser Gln Met Thr Arg Leu Leu Asp Ile Leu Glu Asp Tyr
90 95 100
cta atg tat cgt ggt tac cag tac tgc cgt att gat gga aat act ggt 630
Leu Met Tyr Arg Gly Tyr Gln Tyr Cys Arg Ile Asp Gly Asn Thr Gly
105 110 115
ggg gac gaa cga gat gct tcc ata gaa gcc tat aac aag cca gga agt 678
Gly Asp Glu Arg Asp Ala Ser Ile Glu Ala Tyr Asn Lys Pro Gly Ser
120 125 130
gag aaa ttc gtt ttc ttg tta tcc act aga gct gga gga ctt ggt atc 726
Glu Lys Phe Val Phe Leu Leu Ser Thr Arg Ala Gly Gly Leu Gly Ile
135 140 145
aat ctt gct act gca gat gtt gtg atc ctc tat gat agt gac tgg aac 774
Asn Leu Ala Thr Ala Asp Val Val Ile Leu Tyr Asp Ser Asp Trp Asn
150 155 160 165
cct caa gtt gac ttg caa gct cag gat cgt gca cat agg att ggt caa 822

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Glu Val Glu Glu Lys Glu Leu Leu Glu Glu Gly Phe Ser Thr Trp							
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agc aga aga gac ttc aat gcc ttc att agg gct tgt gag aag tat ggc						1590	
Ser Arg Arg Asp Phe Asn Ala Phe Ile Arg Ala Cys Glu Lys Tyr Gly							
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cgg aac gac ata aag agt att gcc tct gag atg gaa ggg aaa act gag						1638	
Arg Asn Arg Ile Lys Ser Ile Ala Ser Glu Met Glu Gly Lys Thr Glu							
	440			445		450	
gaa gag gtt gaa cga tat gct caa gtt ttc caa gtg cga tat aaa gag						1686	
Glu Glu Val Glu Arg Tyr Ala Gln Val Phe Gln Val Arg Tyr Lys Glu							
	455			460		465	
ctg aat gat tac gac aga atc atc aag aat att gag aga ggg gaa gca						1734	
Leu Asn Asp Tyr Asp Arg Ile Ile Lys Asn Ile Glu Arg Gly Glu Ala							
	470			475		480	
aga atc tct agg aaa gat gaa atc atg aaa gct att ggg aag aaa ctg						1782	
Arg Ile Ser Arg Lys Asp Glu Ile Met Lys Ala Ile Gly Lys Lys Leu							
	490			495		500	
gat cgc tac aga aac ccg tgg ctg gaa ctg aag att caa tat ggt cag						1830	
Asp Arg Tyr Arg Asn Pro Trp Leu Glu Leu Lys Ile Gln Tyr Gly Gln							
	505			510		515	
aac aaa ggg aag ctg tac aat gaa gag tgc gac cgt ttc atg ata tgc						1878	
Asn Lys Gly Lys Leu Tyr Asn Glu Glu Cys Asp Arg Phe Met Ile Cys							
	520			525		530	
atg gtc cat aaa ctt ggg tat gga aac tgg gat gag cta aag gca cgc						1926	
Met Val His Lys Leu Gly Tyr Gly Asn Trp Asp Glu Leu Lys Ala Ala							
	535			540		545	
ttt cgg aca tcc ccc ttg ttt agg ttt gac tgg ttt gta aaa tcc cgc						1974	
Phe Arg Thr Ser Pro Leu Phe Arg Phe Asp Trp Phe Val Lys Ser Arg							
	550			555		560	
aca act cag gaa ctt gca agg aga tgt gac aca cta atc agg ttg att						2022	
Thr Thr Gln Glu Leu Ala Arg Arg Cys Asp Thr Leu Ile Arg Leu Ile							
	570			575		580	
gag aaa gag aat caa gaa ttt gat gag aga gag agg caa gcc cga aaa						2070	
Glu Lys Glu Asn Gln Glu Phe Asp Glu Arg Glu Arg Gln Ala Arg Lys							
	585			590		595	
gag aag aag ctt tca aag agt gca acg cca tca aaa cga cct tcg ggt						2118	
Glu Lys Lys Leu Ser Lys Ser Ala Thr Pro Ser Lys Arg Pro Ser Gly							
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agg caa gca aat gag agc cct tca tct ctt ctg aag aaa cga aag cag						2166	
Arg Gln Ala Asn Glu Ser Pro Ser Ser Leu Leu Lys Lys Arg Lys Gln							
	615			620		625	

ctg tca atg gat gat tat gga aag cgt agg aaa taa gaaggcttgt 2212
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gcactactgc attgtctcog acttctcttta tttcttcaac gtgtatttta ctctattttg 2392

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 35 40 45

Ala Glu Pro Gly Pro Pro Tyr Thr Thr Gly Asp His Leu Val Thr Asn
 50 55 60

Ala Gly Lys Met Val Leu Leu Asp Lys Leu Leu Pro Lys Leu Lys Asp
 65 70 75 80

Arg Asp Ser Arg Val Leu Ile Phe Ser Gln Met Thr Arg Leu Leu Asp
 85 90 95

Ile Leu Glu Asp Tyr Leu Met Tyr Arg Gly Tyr Gln Tyr Cys Arg Ile
 100 105 110

Asp Gly Asn Thr Gly Gly Asp Glu Arg Asp Ala Ser Ile Glu Ala Tyr
 115 120 125

Asn Lys Pro Gly Ser Glu Lys Phe Val Phe Leu Leu Ser Thr Arg Ala
 130 135 140

Gly Gly Leu Gly Ile Asn Leu Ala Thr Ala Asp Val Val Ile Leu Tyr
 145 150 155 160

Asp Ser Asp Trp Asn Pro Gln Val Asp Leu Gln Ala Gln Asp Arg Ala
165 170 175

His Arg Ile Gly Gln Lys Lys Glu Val Gln Val Phe Arg Phe Cys Thr
180 185 190

Glu Asn Ala Ile Glu Ala Lys Val Ile Glu Arg Ala Tyr Lys Lys Leu
195 200 205

Ala Leu Asp Ala Leu Val Ile Gln Gln Gly Arg Leu Ala Glu Gln Lys
210 215 220

Thr Val Asn Lys Asp Glu Leu Leu Gln Met Val Arg Tyr Gly Ala Glu
225 230 235 240

Met Val Phe Ser Ser Lys Asp Ser Thr Ile Thr Asp Glu Asp Ile Asp
245 250 255

Arg Ile Ile Ala Lys Gly Glu Glu Ala Thr Ala Glu Leu Asp Ala Lys
260 265 270

Met Lys Lys Phe Thr Glu Asp Ala Ile Gln Phe Lys Met Asp Asp Ser
275 280 285

Ala Asp Phe Tyr Asp Phe Asp Asp Asp Asn Lys Asp Glu Ser Lys Val
290 295 300

Asp Phe Lys Lys Ile Val Ser Glu Asn Trp Asn Asp Pro Pro Lys Arg
305 310 315 320

Glu Arg Lys Arg Asn Tyr Ser Glu Val Glu Tyr Phe Lys Gln Thr Leu
325 330 335

Arg Gln Gly Ala Pro Ala Lys Pro Lys Glu Pro Arg Ile Pro Arg Met
340 345 350

Pro Gln Leu His Asp Phe Gln Phe Phe Asn Ile Gln Arg Leu Thr Glu
355 360 365

Leu Tyr Glu Lys Glu Val Arg Tyr Leu Met Gln Ala His Gln Lys Thr
370 375 380

Gln Met Lys Asp Thr Ile Glu Val Asp Glu Pro Glu Glu Val Gly Asp
385 390 395 400

Pro Leu Thr Ala Glu Glu Val Glu Glu Lys Glu Leu Leu Leu Glu Glu
405 410 415

Gly Phe Ser Thr Trp Ser Arg Arg Asp Phe Asn Ala Phe Ile Arg Ala
420 425 430

Cys Glu Lys Tyr Gly Arg Asn Asp Ile Lys Ser Ile Ala Ser Glu Met
435 440 445

Glu Gly Lys Thr Glu Glu Glu Val Glu Arg Tyr Ala Gln Val Phe Gln
450 455 460

Val Arg Tyr Lys Glu Leu Asn Asp Tyr Asp Arg Ile Ile Lys Asn Ile
465 470 475 480

Glu Arg Gly Glu Ala Arg Ile Ser Arg Lys Asp Glu Ile Met Lys Ala
485 490 495

Ile Gly Lys Lys Leu Asp Arg Tyr Arg Asn Pro Trp Leu Glu Leu Lys
500 505 510

Ile Gln Tyr Gly Gln Asn Lys Gly Lys Leu Tyr Asn Glu Glu Cys Asp
515 520 525

Arg Phe Met Ile Cys Met Val His Lys Leu Gly Tyr Gly Asn Trp Asp
530 535 540

Glu Leu Lys Ala Ala Phe Arg Thr Ser Pro Leu Phe Arg Phe Asp Trp
545 550 555 560

Phe Val Lys Ser Arg Thr Thr Gln Glu Leu Ala Arg Arg Cys Asp Thr
565 570 575

Leu Ile Arg Leu Ile Glu Lys Glu Asn Gln Glu Phe Asp Glu Arg Glu
580 585 590

Arg Gln Ala Arg Lys Glu Lys Lys Leu Ser Lys Ser Ala Thr Pro Ser
595 600 605

Lys Arg Pro Ser Gly Arg Gln Ala Asn Glu Ser Pro Ser Ser Leu Leu

610

615

620

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 Met Asp Pro Phe Leu Ile Gln Ser Pro Phe Ser Gly Phe Ser Pro Glu
 1 5 10 15

tat tct atc gga tct tct cca gat tct ttc tca tcc tct tct tct aac 157
 Tyr Ser Ile Gly Ser Ser Pro Asp Ser Phe Ser Ser Ser Ser Ser Asn
 20 25 30

aat tac tct ctt ccc ttc aac gag aac gac tca gag gaa atg ttt ctc 205
 Asn Tyr Ser Leu Pro Phe Asn Glu Asn Asp Ser Glu Glu Met Phe Leu
 35 40 45

tac ggt cta atc gag cag tcc acg caa caa acc tat att gac tcg gat 253
 Tyr Gly Leu Ile Glu Gln Ser Thr Gln Gln Thr Tyr Ile Asp Ser Asp
 50 55 60

agt caa gac ctt ccg atc aaa tcc gta agc tca aga aag tca gag aag 301
 Ser Gln Asp Leu Pro Ile Lys Ser Val Ser Ser Arg Lys Ser Glu Lys
 65 70 75 80

tct tac aga ggc gta aga cga cgg cca tgg ggg aaa ttc cgc gcg gag 349
 Ser Tyr Arg Gly Val Arg Arg Arg Pro Trp Gly Lys Phe Ala Ala Glu
 85 90 95

ata aga gat tcg act aga aac ggt att agg gtt tgg ctc ggg acg ttc 397
 Ile Arg Asp Ser Thr Arg Asn Gly Ile Arg Val Trp Leu Gly Thr Phe
 100 105 110

gaa agc gcg gaa gag gcg gct tta gcc tac gat caa gct gct ttc tcg 445
 Glu Ser Ala Glu Glu Ala Ala Leu Ala Tyr Asp Gln Ala Ala Phe Ser
 115 120 125

atg aga ggg tcc tcg gcg att ctc aat ttt tcg gcg gag aga gtt caa 493
 Met Arg Gly Ser Ser Ala Ile Leu Asn Phe Ser Ala Glu Arg Val Gln
 130 135 140

gag tcg ctt tcg gag att aaa tat acc tac gag gat ggt tgt tct ccg 541
 Glu Ser Leu Ser Glu Ile Lys Tyr Thr Tyr Glu Asp Gly Cys Ser Pro
 145 150 155 160

gtt gtg gcg ttg aag agg aaa cac tcg atg aga cgg aga atg acc aat 589
 Val Val Ala Leu Lys Arg Lys His Ser Met Arg Arg Arg Met Thr Asn
 165 170 175

aag aag acg aaa gat agt gac ttt gat cac cgc tcc gtg aag tta gat 637
Lys Lys Thr Lys Asp Ser Asp Phe Asp His Arg Ser Val Lys Leu Asp
180 185 190

aat gta gtt gtc ttt gag gat ttg gga gaa cag tac ctt gag gag ctt 685
Asn Val Val Val Phe Glu Asp Leu Gly Glu Gln Tyr Leu Glu Glu Leu
195 200 205

ttg ggg tct tct gaa aat agt ggg act tgg tga aagattagga tttgtattag 738
Leu Gly Ser Ser Glu Asn Ser Gly Thr Trp
210 215

ggaccttaag tttgaagtgg ttgattaatt ttaaccctaa tatgtttttt gtttgcttaa 798
atatttgatt ctattgagaa acatcgaaaa cagtttgtat gtacttttgt gatacttggc 858
g 859

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Tyr Ser Ile Gly Ser Ser Pro Asp Ser Phe Ser Ser Ser Ser Ser Asn
20 25 30

Asn Tyr Ser Leu Pro Phe Asn Glu Asn Asp Ser Glu Glu Met Phe Leu
35 40 45

Tyr Gly Leu Ile Glu Gln Ser Thr Gln Gln Thr Tyr Ile Asp Ser Asp
50 55 60

Ser Gln Asp Leu Pro Ile Lys Ser Val Ser Ser Arg Lys Ser Glu Lys
65 70 75 80

Ser Tyr Arg Gly Val Arg Arg Arg Pro Trp Gly Lys Phe Ala Ala Glu
85 90 95

Ile Arg Asp Ser Thr Arg Asn Gly Ile Arg Val Trp Leu Gly Thr Phe
100 105 110

Glu Ser Ala Glu Glu Ala Ala Leu Ala Tyr Asp Gln Ala Ala Phe Ser
115 120 125

Met Arg Gly Ser Ser Ala Ile Leu Asn Phe Ser Ala Glu Arg Val Gln
130 135 140

Glu Ser Leu Ser Glu Ile Lys Tyr Thr Tyr Glu Asp Gly Cys Ser Pro
145 150 155 160

Val Val Ala Leu Lys Arg Lys His Ser Met Arg Arg Arg Met Thr Asn
165 170 175

Lys Lys Thr Lys Asp Ser Asp Phe Asp His Arg Ser Val Lys Leu Asp
180 185 190

Asn Val Val Val Phe Glu Asp Leu Gly Glu Gln Tyr Leu Glu Glu Leu
195 200 205

Leu Gly Ser Ser Glu Asn Ser Gly Thr Trp
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atcaccaccc tctccggctc tcaacagAAC aacaacaaaa aaacagcttc cgttgtcctg 120

ttccggcgaa atcggaagggt cgagatcaat c atg cat cgt aga gca gca att 172
Met His Arg Arg Ala Ala Ile
1 5

caa gaa tcg gat gac gaa gaa gat gag act tac aac gac gtc gtt cct 220
Gln Glu Ser Asp Asp Glu Glu Asp Glu Thr Tyr Asn Asp Val Val Pro
10 15 20

gaa tct cct tct tct tgt gaa gac tca aag atc tca aaa cca act cca 268
Glu Ser Pro Ser Ser Cys Glu Asp Ser Lys Ile Ser Lys Pro Thr Pro
25 30 35

aag aaa agg agg aac gta gag aag aga gtt gtc tca gtt ccg ata gct 316
Lys Lys Arg Arg Asn Val Glu Lys Arg Val Val Ser Val Pro Ile Ala
40 45 50 55

gac gtg gaa gga tct aag agc aga ggc gaa gta tat cca ccg tcc gat 364
Asp Val Glu Gly Ser Lys Ser Arg Gly Glu Val Tyr Pro Pro Ser Asp
60 65 70

tca tgg gcc tgg aga aag tac gga caa aaa ccg atc aaa ggc tcg cct 412
Ser Trp Ala Trp Arg Lys Tyr Gly Gln Lys Pro Ile Lys Gly Ser Pro
75 80 85

tat ccc agg gga tat tac aga tgt agt agc tca aaa gga tgt ccg gcg 460
Tyr Pro Arg Gly Tyr Tyr Arg Cys Ser Ser Ser Lys Gly Cys Pro Ala
90 95 100

agg aag cag gtg gag aga agc cgt gtg gac cct tct aag ctt atg att 508

Arg	Lys	Gln	Val	Glu	Arg	Ser	Arg	Val	Asp	Pro	Ser	Lys	Leu	Met	Ile	
105						110					115					
act	tac	gcc	tgc	gac	cac	aat	cac	cct	tto	cct	tcc	tcc	tcc	gct	aac	556
Thr	Tyr	Ala	Cys	Asp	His	Asn	His	Pro	Phe	Pro	Ser	Ser	Ser	Ala	Asn	
120					125					130					135	
acc	aaa	tcc	cac	cac	cgc	tcc	tcc	gtc	gtc	ctc	aaa	acc	gca	aag	aaa	604
Thr	Lys	Ser	His	His	Arg	Ser	Ser	Val	Val	Leu	Lys	Thr	Ala	Lys	Lys	
				140					145					150		
gag	gaa	gaa	tac	gaa	gag	gag	gaa	gaa	gaa	cta	acc	gtc	acc	gcc	gca	652
Glu	Glu	Glu	Tyr	Glu	Glu	Glu	Glu	Glu	Glu	Leu	Thr	Val	Thr	Ala	Ala	
			155					160					165			
gag	gaa	cca	ccg	gcg	gga	ctt	gat	cta	agc	cac	gta	gac	tca	ccg	ttg	700
Glu	Glu	Pro	Pro	Ala	Gly	Leu	Asp	Leu	Ser	His	Val	Asp	Ser	Pro	Leu	
		170				175						180				
cta	tta	ggc	ggc	tgc	tac	agc	gaa	atc	gga	gag	tto	ggg	tgg	ttc	tac	748
Leu	Leu	Gly	Gly	Cys	Tyr	Ser	Glu	Ile	Gly	Glu	Phe	Gly	Trp	Phe	Tyr	
	185				190						195					
gac	gcg	tcg	atc	tca	tca	tca	tct	ggg	tct	tcg	aat	ttc	ctc	gac	gta	796
Asp	Ala	Ser	Ile	Ser	Ser	Ser	Ser	Gly	Ser	Ser	Asn	Phe	Leu	Asp	Val	
200				205						210				215		
act	cta	gag	aga	ggg	ttt	tca	gta	ggc	caa	gag	gaa	gat	gag	tct	ttg	844
Thr	Leu	Glu	Arg	Gly	Phe	Ser	Val	Gly	Gln	Glu	Glu	Asp	Glu	Ser	Leu	
			220					225					230			
ttc	ggg	gat	ctc	ggg	gat	tta	cct	gat	tgc	gcc	tcc	gtg	tto	cgc	cgt	892
Phe	Gly	Asp	Leu	Gly	Asp	Leu	Pro	Asp	Cys	Ala	Ser	Val	Phe	Arg	Arg	
		235						240					245			
ggg	act	gtt	gcg	acg	gag	gag	caa	cat	cga	aga	tgt	gat	ttt	ggc	gcc	940
Gly	Thr	Val	Ala	Thr	Glu	Glu	Gln	His	Arg	Arg	Cys	Asp	Phe	Gly	Ala	
		250				255						260				
att	cct	ttc	tgt	gat	agt	tct	aga	tga	gtttgtgtgt	gtagccaaaa						987
Ile	Pro	Phe	Cys	Asp	Ser	Ser	Arg									
	265					270										
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cattttttta	aaaaaaaaaa	aaaaa														1072
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Thr	Tyr	Asn	Asp	Val	Val	Pro	Glu	Ser	Pro	Ser	Ser	Cys	Glu	Asp	Ser	
			20					25					30			

Lys Ile Ser Lys Pro Thr Pro Lys Lys Arg Arg Asn Val Glu Lys Arg
 35 40 45

Val Val Ser Val Pro Ile Ala Asp Val Glu Gly Ser Lys Ser Arg Gly
 50 55 60

Glu Val Tyr Pro Pro Ser Asp Ser Trp Ala Trp Arg Lys Tyr Gly Gln
 65 70 75 80

Lys Pro Ile Lys Gly Ser Pro Tyr Pro Arg Gly Tyr Tyr Arg Cys Ser
 85 90 95

Ser Ser Lys Gly Cys Pro Ala Arg Lys Gln Val Glu Arg Ser Arg Val
 100 105 110

Asp Pro Ser Lys Leu Met Ile Thr Tyr Ala Cys Asp His Asn His Pro
 115 120 125

Phe Pro Ser Ser Ser Ala Asn Thr Lys Ser His His Arg Ser Ser Val
 130 135 140

Val Leu Lys Thr Ala Lys Lys Glu Glu Glu Tyr Glu Glu Glu Glu
 145 150 155 160

Glu Leu Thr Val Thr Ala Ala Glu Glu Pro Pro Ala Gly Leu Asp Leu
 165 170 175

Ser His Val Asp Ser Pro Leu Leu Leu Gly Gly Cys Tyr Ser Glu Ile
 180 185 190

Gly Glu Phe Gly Trp Phe Tyr Asp Ala Ser Ile Ser Ser Ser Ser Gly
 195 200 205

Ser Ser Asn Phe Leu Asp Val Thr Leu Glu Arg Gly Phe Ser Val Gly
 210 215 220

Gln Glu Glu Asp Glu Ser Leu Phe Gly Asp Leu Gly Asp Leu Pro Asp
 225 230 235 240

Cys Ala Ser Val Phe Arg Arg Gly Thr Val Ala Thr Glu Glu Gln His
 245 250 255

Arg Arg Cys Asp Phe Gly Ala Ile Pro Phe Cys Asp Ser Ser Arg
260 265 270

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atg aat gat gca gac aca aac ttg ggg agt agt ttc agc gat gat act 105
Met Asn Asp Ala Asp Thr Asn Leu Gly Ser Ser Phe Ser Asp Asp Thr
1 5 10 15

cac tct gtg ttc gag ttt ccg gag cta gac ttg tca gat gaa tgg atg 153
His Ser Val Phe Glu Phe Pro Glu Leu Asp Leu Ser Asp Glu Trp Met
20 25 30

gat gat gat ctt gtg tct gcg gtt tcc ggg atg aat cag tct tat ggt 201
Asp Asp Asp Leu Val Ser Ala Val Ser Gly Met Asn Gln Ser Tyr Gly
35 40 45

tat cag act agt gat gtt gct ggt gct tta ttc tca ggt tct tct agc 249
Tyr Gln Thr Ser Asp Val Ala Gly Ala Leu Phe Ser Gly Ser Ser Ser
50 55 60

tgt ttc agt cat cct gaa tct cca agt acc aaa act tat gtt gct gct 297
Cys Phe Ser His Pro Glu Ser Pro Ser Thr Lys Thr Tyr Val Ala Ala
65 70 75 80

aca gcc act gct tct gcc gac aac caa aac aag aaa gaa aag aaa aaa 345
Thr Ala Thr Ala Ser Ala Asp Asn Gln Asn Lys Lys Glu Lys Lys Lys
85 90 95

att aaa ggg aga gtt gcg ttc aag aca cgg tcc gag gtg gaa gtg ctt 393
Ile Lys Gly Arg Val Ala Phe Lys Thr Arg Ser Glu Val Glu Val Leu
100 105 110

gac gac ggg ttc aag tgg aga aag tat ggg aag aag atg gtg aag aac 441
Asp Asp Gly Phe Lys Trp Arg Lys Tyr Gly Lys Lys Met Val Lys Asn
115 120 125

agc cca cat cca aga aac tac tac aaa tgt tca gtt gat ggc tgt ccc 489
Ser Pro His Pro Arg Asn Tyr Tyr Lys Cys Ser Val Asp Gly Cys Pro
130 135 140

gtg aag aaa agg gtt gaa cga gac aga gat gat ccg agc ttt gtg ata 537
Val Lys Lys Arg Val Glu Arg Asp Arg Asp Asp Pro Ser Phe Val Ile
145 150 155 160

aca act tac gag ggt tcc cac aat cac tca agc atg aac taa 579
Thr Thr Tyr Glu Gly Ser His Asn His Ser Ser Met Asn
165 170

gactogaact aaggctcaag gcgacatgc tatattcagc acatcttatt ttctatgggt 639

acgaacgata cttaaaactg cttctagttc ttatatcca ttgtaaacgt gttgcagggt 699

cacaaatttt gagaggttta tgacattcta aatctgtagt acctatata

748

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His Ser Val Phe Glu Phe Pro Glu Leu Asp Leu Ser Asp Glu Trp Met
20 25 30

Asp Asp Asp Leu Val Ser Ala Val Ser Gly Met Asn Gln Ser Tyr Gly
35 40 45

Tyr Gln Thr Ser Asp Val Ala Gly Ala Leu Phe Ser Gly Ser Ser Ser
50 55 60

Cys Phe Ser His Pro Glu Ser Pro Ser Thr Lys Thr Tyr Val Ala Ala
65 70 75 80

Thr Ala Thr Ala Ser Ala Asp Asn Gln Asn Lys Lys Glu Lys Lys Lys
85 90 95

Ile Lys Gly Arg Val Ala Phe Lys Thr Arg Ser Glu Val Glu Val Leu
100 105 110

Asp Asp Gly Phe Lys Trp Arg Lys Tyr Gly Lys Lys Met Val Lys Asn
115 120 125

Ser Pro His Pro Arg Asn Tyr Tyr Lys Cys Ser Val Asp Gly Cys Pro
130 135 140

Val Lys Lys Arg Val Glu Arg Asp Arg Asp Asp Pro Ser Phe Val Ile
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Thr Thr Tyr Glu Gly Ser His Asn His Ser Ser Met Asn
165 170

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cta gtg aag gtc att agt ctt ttg gga gaa cgt cgt tgg gat tct tta Leu Val Lys Val Ile Ser Leu Leu Gly Glu Arg Arg Trp Asp Ser Leu 25 30 35	151
gca ata gtt tcc ggt ttg aag agg agt ggt aag agt tgc agg cta agg Ala Ile Val Ser Gly Leu Lys Arg Ser Gly Lys Ser Cys Arg Leu Arg 40 45 50	199
tgg atg aac tat ctg aat cgg act ctg aag cgt gga cgg atg agt caa Trp Met Asn Tyr Leu Asn Pro Thr Leu Lys Arg Gly Pro Met Ser Gln 55 60 65	247
gaa gaa gag aga atc atc ttt cag ctc cat gct cta tgg ggt aac aag Glu Glu Glu Arg Ile Ile Phe Gln Leu His Ala Leu Trp Gly Asn Lys 70 75 80 85	295
tgg tcg aag att gcg aga aga tta ccc ggt agg act gat aac gag ata Trp Ser Lys Ile Ala Arg Arg Leu Pro Gly Arg Thr Asp Asn Glu Ile 90 95 100	343
aag aac tat tgg aga act cat tat aga aag aaa cag gaa gct caa aac Lys Asn Tyr Trp Arg Thr His Tyr Arg Lys Lys Gln Glu Ala Gln Asn 105 110 115	391
tat gga aag ctc ttt gag tgg aga gga aat aca gga gaa gaa ttg ttg Tyr Gly Lys Leu Phe Glu Trp Arg Gly Asn Thr Lys Glu Glu Leu Leu 120 125 130	439
cac aag tat aag gaa aca gag atc act agg aca aag acg acg tct caa His Lys Tyr Lys Glu Thr Glu Ile Thr Arg Thr Lys Thr Thr Ser Gln 135 140 145	487
gaa cat ggt ttt gtt gaa gtt gtg agc atg gaa agt ggt aaa gaa gcc Glu His Gly Phe Val Glu Val Val Ser Met Glu Ser Gly Lys Glu Ala 150 155 160 165	535
aac ggt ggt gtt ggt gga aga gaa agc ttc ggt gtt atg aaa tca ccg Asn Gly Gly Val Gly Gly Arg Glu Ser Phe Gly Val Met Lys Ser Pro 170 175 180	583
tat gaa aat cgg att tcg gat tgg ata tca gag att tct act gac cag Tyr Glu Asn Arg Ile Ser Asp Trp Ile Ser Glu Ile Ser Thr Asp Gln 185 190 195	631
agt gaa gca aat ctt tca gaa gat cac agc agc aat agc tgc agt gag Ser Glu Ala Asn Leu Ser Glu Asp His Ser Ser Asn Ser Cys Ser Glu 200 205 210	679
aac aat att aac att ggt act tgg tgg ttt caa gag act agg gac ttt Asn Asn Ile Asn Ile Gly Thr Trp Trp Phe Gln Glu Thr Arg Asp Phe 215 220 225	727

gag gag ttt tca tgt tct cta tgg tca taa ttctaaagtt gggtttattta 777
 Glu Glu Phe Ser Cys Ser Leu Trp Ser
 230 235

cttttttaaaa aaaaaaaaaa aaa 800

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 20 25 30

Arg Trp Asp Ser Leu Ala Ile Val Ser Gly Leu Lys Arg Ser Gly Lys
 35 40 45

Ser Cys Arg Leu Arg Trp Met Asn Tyr Leu Asn Pro Thr Leu Lys Arg
 50 55 60

Gly Pro Met Ser Gln Glu Glu Glu Arg Ile Ile Phe Gln Leu His Ala
 65 70 75 80

Leu Trp Gly Asn Lys Trp Ser Lys Ile Ala Arg Arg Leu Pro Gly Arg
 85 90 95

Thr Asp Asn Glu Ile Lys Asn Tyr Trp Arg Thr His Tyr Arg Lys Lys
 100 105 110

Gln Glu Ala Gln Asn Tyr Gly Lys Leu Phe Glu Trp Arg Gly Asn Thr
 115 120 125

Gly Glu Glu Leu Leu His Lys Tyr Lys Glu Thr Glu Ile Thr Arg Thr
 130 135 140

Lys Thr Thr Ser Gln Glu His Gly Phe Val Glu Val Val Ser Met Glu
 145 150 155 160

Ser Gly Lys Glu Ala Asn Gly Gly Val Gly Gly Arg Glu Ser Phe Gly
 165 170 175

Val Met Lys Ser Pro Tyr Glu Asn Arg Ile Ser Asp Trp Ile Ser Glu
 180 185 190

Ile Ser Thr Asp Gln Ser Glu Ala Asn Leu Ser Glu Asp His Ser Ser
195 200 205

Asn Ser Cys Ser Glu Asn Asn Ile Asn Ile Gly Thr Trp Trp Phe Gln
210 215 220

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Val Lys Lys Met Lys Lys Gly Leu Trp Ser Pro Glu Glu Asp Ser Lys
15 20 25 30

ctg atg caa tac atg tta agc aat gga caa gga tgt tgg agt gat gtt 144
Leu Met Gln Tyr Met Leu Ser Asn Gly Gln Gly Cys Trp Ser Asp Val
35 40 45

gcg aaa aac gca gga ctt caa aga tgt ggc aaa agc tgc cgt ctt cgt 192
Ala Lys Asn Ala Gly Leu Gln Arg Cys Gly Lys Ser Cys Arg Leu Arg
50 55 60

tgg atc aac tat ctt cgt cct gac ctc aag cgt ggc gct ttc tct cct 240
Trp Ile Asn Tyr Leu Arg Pro Asp Leu Lys Arg Gly Ala Phe Ser Pro
65 70 75

caa gaa gag gat ctc atc att cgc ttt cat tcc atc ctc ggc aac agg 288
Gln Glu Glu Asp Leu Ile Ile Arg Phe His Ser Ile Leu Gly Asn Arg
80 85 90

tgg tct cag att gca gca cga ttg cct ggt cgg acc gat aac gag atc 336
Trp Ser Gln Ile Ala Ala Arg Leu Pro Gly Arg Thr Asp Asn Glu Ile
95 100 105 110

aag aat ttc tgg aac tca aca ata aag aaa agg cta aag aag atg tcc 384
Lys Asn Phe Trp Asn Ser Thr Ile Lys Lys Arg Leu Lys Lys Met Ser
115 120 125

gat acc tcc aac tta atc aac aac tca tcc tca tca ccc aac aca gca 432
Asp Thr Ser Asn Leu Ile Asn Asn Ser Ser Ser Ser Pro Asn Thr Ala
130 135 140

agc gat tcc tct tct aat tcc gca tct tct ttg gat att aaa gac att 480
Ser Asp Ser Ser Ser Asn Ser Ala Ser Ser Leu Asp Ile Lys Asp Ile
145 150 155

ata gga agc ttc atg tcc tta caa gaa caa ggc ttc gtc aac cct tcc 528

Ile	Gly	Ser	Phe	Met	Ser	Leu	Gln	Glu	Gln	Gly	Phe	Val	Asn	Pro	Ser		
160						165					170						
ttg	acc	cac	ata	caa	acc	aac	aat	cca	ttt	cca	acg	gga	aac	atg	atc	576	
Leu	Thr	His	Ile	Gln	Thr	Asn	Asn	Pro	Phe	Pro	Thr	Gly	Asn	Met	Ile		
175					180					185					190		
agc	cac	ccg	tcg	aat	gac	gat	ttt	acc	cct	tat	gta	gat	ggg	atc	tat	624	
Ser	His	Pro	Cys	Asn	Asp	Asp	Phe	Thr	Pro	Tyr	Val	Asp	Gly	Ile	Tyr		
				195					200					205			
gga	gta	aac	gca	ggg	gta	caa	ggg	gaa	ctc	tac	ttc	cca	cct	ttg	gaa	672	
Gly	Val	Asn	Ala	Gly	Val	Gln	Gly	Glu	Leu	Tyr	Phe	Pro	Pro	Leu	Glu		
			210					215					220				
tgt	gaa	gaa	ggg	gat	tgg	tac	aat	gca	aat	ata	aac	aac	cac	tta	gac	720	
Cys	Glu	Glu	Gly	Asp	Trp	Tyr	Asn	Ala	Asn	Ile	Asn	Asn	His	Leu	Asp		
			225				230						235				
gag	ttg	aac	act	aat	gga	tcg	gga	aac	gca	cct	gag	ggg	atg	aga	cca	768	
Glu	Leu	Asn	Thr	Asn	Gly	Ser	Gly	Asn	Ala	Pro	Glu	Gly	Met	Arg	Pro		
			240				245						250				
gtg	gaa	gaa	ttt	tgg	gac	ctt	gac	cag	ttg	atg	aac	act	gag	gtt	cct	816	
Val	Glu	Glu	Phe	Trp	Asp	Leu	Asp	Gln	Leu	Met	Asn	Thr	Glu	Val	Pro		
			255			260				265					270		
tcg	ttt	tac	ttc	aac	ttc	aaa	caa	agc	ata	tga	atatattttac	gtcatctttat				869	
Ser	Phe	Tyr	Phe	Asn	Phe	Lys	Gln	Ser	Ile								
				275					280								
ttttttttct	attgcggttt	atactcaaga	ttcttagcca	cacacacata	aatgcaaata											929	
tatatacatt	gttagagagt	atattgtatt	tcgtataatc	ttttcgtact	agggcttgag											989	
ccttgaggtc	ccatgtaacg	attagtcaat	gtaaaacata	tatcctataa	taaataaata											1049	
aaagaaataa	taagcacata	aaaaaaaaaa	aa													1081	
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Met	Arg	Lys	Pro	Glu	Val	Ala	Ile	Ala	Ala	Ser	Thr	His	Gln	Val	Lys		
1				5					10					15			
Lys	Met	Lys	Lys	Gly	Leu	Trp	Ser	Pro	Glu	Glu	Asp	Ser	Lys	Leu	Met		
			20						25					30			
Gln	Tyr	Met	Leu	Ser	Asn	Gly	Gln	Gly	Cys	Trp	Ser	Asp	Val	Ala	Lys		
			35						40					45			
Asn	Ala	Gly	Leu	Gln	Arg	Cys	Gly	Lys	Ser	Cys	Arg	Leu	Arg	Trp	Ile		
	50					55					60						

Asn Tyr Leu Arg Pro Asp Leu Lys Arg Gly Ala Phe Ser Pro Gln Glu
65 70 75 80

Glu Asp Leu Ile Ile Arg Phe His Ser Ile Leu Gly Asn Arg Trp Ser
85 90 95

Gln Ile Ala Ala Arg Leu Pro Gly Arg Thr Asp Asn Glu Ile Lys Asn
100 105 110

Phe Trp Asn Ser Thr Ile Lys Lys Arg Leu Lys Lys Met Ser Asp Thr
115 120 125

Ser Asn Leu Ile Asn Asn Ser Ser Ser Ser Pro Asn Thr Ala Ser Asp
130 135 140

Ser Ser Ser Asn Ser Ala Ser Ser Leu Asp Ile Lys Asp Ile Ile Gly
145 150 155 160

Ser Phe Met Ser Leu Gln Gln Gly Phe Val Asn Pro Ser Leu Thr
165 170 175

His Ile Gln Thr Asn Asn Pro Phe Pro Thr Gly Asn Met Ile Ser His
180 185 190

Pro Cys Asn Asp Asp Phe Thr Pro Tyr Val Asp Gly Ile Tyr Gly Val
195 200 205

Asn Ala Gly Val Gln Gly Glu Leu Tyr Phe Pro Pro Leu Glu Cys Glu
210 215 220

Glu Gly Asp Trp Tyr Asn Ala Asn Ile Asn Asn His Leu Asp Glu Leu
225 230 235 240

Asn Thr Asn Gly Ser Gly Asn Ala Pro Glu Gly Met Arg Pro Val Glu
245 250 255

Glu Phe Trp Asp Leu Asp Gln Leu Met Asn Thr Glu Val Pro Ser Phe
260 265 270

Tyr Phe Asn Phe Lys Gln Ser Ile
275 280

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gaagaagaaa a atg atc atg tgc agc cga ggc cat tgg aga cca gct gaa 110
Met Ile Met Cys Ser Arg Gly His Trp Arg Pro Ala Glu
1 5 10
gac gag aag ctc aag gat ctt gtc gaa caa tac ggt cct cac aat tgg 158
Asp Glu Lys Leu Lys Asp Leu Val Glu Gln Tyr Gly Pro His Asn Trp
15 20 25
aac gcc att gct ctc aag ctt cct ggt cgc tct ggt aag agt tgt aga 206
Asn Ala Ile Ala Leu Lys Leu Pro Gly Arg Ser Gly Lys Ser Cys Arg
30 35 40 45
ttg aga tgg ttt aat caa ttg gat cca agg atc aac cga aac cct ttc 254
Leu Arg Trp Phe Asn Gln Leu Asp Pro Arg Ile Asn Arg Asn Pro Phe
50 55 60
acg gaa gaa gaa gaa gaa aga ctt tta gcg gct cat cgg atc cat ggg 302
Thr Glu Glu Glu Glu Glu Arg Leu Leu Ala Ala His Arg Ile His Gly
65 70 75
aac aga tgg tcc atc atc gca agg ctt ttc cct gga aga act gat aac 350
Asn Arg Trp Ser Ile Ile Ala Arg Leu Phe Pro Gly Arg Thr Asp Asn
80 85 90
gcc gtc aag aac cat tgg cac gtc atc atg gct cgt cgc aca cgc caa 398
Ala Val Lys Asn His Trp His Val Ile Met Ala Arg Arg Thr Arg Gln
95 100 105
acc tct aag cct cgt ctt ctt ccc tcg acg act tcg tct tct tct tta 446
Thr Ser Lys Pro Arg Leu Leu Pro Ser Thr Thr Ser Ser Ser Ser Leu
110 115 120 125
atg gcg agt gaa caa atc atg atg agt tct ggt ggt tat aat cat aat 494
Met Ala Ser Glu Gln Ile Met Met Ser Ser Gly Gly Tyr Asn His Asn
130 135 140
tat agt tcc gat gat cgg aag aaa ata ttt cca gca gac ttt ata aat 542
Tyr Ser Ser Asp Asp Arg Lys Lys Ile Phe Pro Ala Asp Phe Ile Asn
145 150 155
ttc cct tac aaa ttc tct cat atc aat cat ctt cac ttc cta aag gag 590
Phe Pro Tyr Lys Phe Ser His Ile Asn His Leu His Phe Leu Lys Glu
160 165 170
ttt ttc ccc gga aag atc gct tta agt cac aaa gca aat cag agt aag 638
Phe Phe Pro Gly Lys Ile Ala Leu Ser His Lys Ala Asn Gln Ser Lys
175 180 185
aag cct atg gag ttc tac aat ttt cta caa gta aac aca gat tca aac 686
Lys Pro Met Glu Phe Tyr Asn Phe Leu Gln Val Asn Thr Asp Ser Asn
190 195 200 205

aag agc gag att ata gat caa gat tca ggt caa agc aaa cgc agt gac 734
Lys Ser Glu Ile Ile Asp Gln Asp Ser Gly Gln Ser Lys Arg Ser Asp
210 215 220
tcg gac acc aaa cat gaa agt cat gtt cca ttc ttc gac ttt tta tcc 782
Ser Asp Thr Lys His Glu Ser His Val Pro Phe Phe Asp Phe Leu Ser
225 230 235
gtt gga aac tct gcc tcc tag gattagtttt ttgcagtaa ctccctaaatt 833
Val Gly Asn Ser Ala Ser
240
tctagattaa ctatttagtc cgtatacgta cgagattatc taggtcgta gcatgtatgc 893
ttgatgtgta taatcaactaa ctatgagct attacotgag aaaattgtaa gaaaaatata 953
taatgttgat gtatcacaca ttctcaatgt ctgtaaaatt tccatcgagt tggttaactat 1013
caaagttatc cgtttgaaaa aaaaaaaaa 1041
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1 5 10 15
Leu Lys Asp Leu Val Glu Gln Tyr Gly Pro His Asn Trp Asn Ala Ile
20 25 30
Ala Leu Lys Leu Pro Gly Arg Ser Gly Lys Ser Cys Arg Leu Arg Trp
35 40 45
Phe Asn Gln Leu Asp Pro Arg Ile Asn Arg Asn Pro Phe Thr Glu Glu
50 55 60
Glu Glu Glu Arg Leu Leu Ala Ala His Arg Ile His Gly Asn Arg Trp
65 70 75 80
Ser Ile Ile Ala Arg Leu Phe Pro Gly Arg Thr Asp Asn Ala Val Lys
85 90 95
Asn His Trp His Val Ile Met Ala Arg Arg Thr Arg Gln Thr Ser Lys
100 105 110
Pro Arg Leu Leu Pro Ser Thr Thr Ser Ser Ser Ser Leu Met Ala Ser
115 120 125
Glu Gln Ile Met Met Ser Ser Gly Gly Tyr Asn His Asn Tyr Ser Ser

130

135

140

Asp Asp Arg Lys Lys Ile Phe Pro Ala Asp Phe Ile Asn Phe Pro Tyr
145 150 155 160

Lys Phe Ser His Ile Asn His Leu His Phe Leu Lys Glu Phe Phe Pro
165 170 175

Gly Lys Ile Ala Leu Ser His Lys Ala Asn Gln Ser Lys Lys Pro Met
180 185 190

Glu Phe Tyr Asn Phe Leu Gln Val Asn Thr Asp Ser Asn Lys Ser Glu
195 200 205

Ile Ile Asp Gln Asp Ser Gly Gln Ser Lys Arg Ser Asp Ser Asp Thr
210 215 220

Lys His Glu Ser His Val Pro Phe Phe Asp Phe Leu Ser Val Gly Asn
225 230 235 240

Ser Ala Ser

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Met Gly Lys
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gga aga gca cca tgt tgt gac aaa acc aaa gtg aag aga gga cca tgg 105
Gly Arg Ala Pro Cys Cys Asp Lys Thr Lys Val Lys Arg Gly Pro Trp
5 10 15

agc cat gat gaa gac ttg aaa ctc atc tct ttc att cac aag aat ggt 153
Ser His Asp Glu Asp Leu Lys Leu Ile Ser Phe Ile His Lys Asn Gly
20 25 30 35

cat gag aat tgg aga tct ctc cca aag caa gct gga ttg ttg agg tgt 201
His Glu Asn Trp Arg Ser Leu Pro Lys Gln Ala Gly Leu Arg Arg Cys
40 45 50

ggc aag agt tgt cgt ctg cga tgg att aat tac ctc aga cct gat gtg 249
Gly Lys Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg Pro Asp Val
55 60 65

aaa cgt ggc aat ttc agt gca gag gaa gaa gac acc atc atc aaa ctt 297
Lys Arg Gly Asn Phe Ser Ala Glu Glu Glu Asp Thr Ile Ile Lys Leu

70	75	80	
cac cag agc ttt ggt aac aag tgg tgc aag att gct tct aag ctg cct			345
His Gln Ser Phe Gly Asn Lys Trp Ser Lys Ile Ala Ser Lys Leu Pro			
85	90	95	
gga aga aca gac aat gag atc aag aat gtg tgg cat aca cat ctc aag			393
Gly Arg Thr Asp Asn Glu Ile Lys Asn Val Trp His Thr His Leu Lys			
100	105	110	115
aaa aga ttg agc tgc gaa act aac ctt aat gcc gat gaa gcg ggt tca			441
Lys Arg Leu Ser Ser Glu Thr Asn Leu Asn Ala Asp Glu Ala Gly Ser			
120	125	130	
aaa ggt tct ttg aat gaa gaa gag aac tct caa gag tca tct cca aat			489
Lys Gly Ser Leu Asn Glu Glu Glu Asn Ser Gln Glu Ser Ser Pro Asn			
135	140	145	
gct tca atg tct ttt gct ggt tcc aac att tca agc aaa gac gat gat			537
Ala Ser Met Ser Phe Ala Gly Ser Asn Ile Ser Ser Lys Asp Asp Asp			
150	155	160	
gca cag ata agt caa atg ttt gag cac att cta act tat agc gag ttt			585
Ala Gln Ile Ser Gln Met Phe Glu His Ile Leu Thr Tyr Ser Glu Phe			
165	170	175	
acg ggg atg tta caa gag gta gac aaa cca gag ctg ctg gag atg cct			633
Thr Gly Met Leu Gln Glu Val Asp Lys Pro Glu Leu Leu Glu Met Pro			
180	185	190	195
ttt gat tta gat cct gac att tgg agt ttc ata gat ggt tca gac tca			681
Phe Asp Leu Asp Pro Asp Ile Trp Ser Phe Ile Asp Gly Ser Asp Ser			
200	205	210	
ttc caa caa cca gag aac aga gct ctt caa gag tct gaa gaa gat gaa			729
Phe Gln Gln Pro Glu Asn Arg Ala Leu Gln Glu Ser Glu Glu Asp Glu			
215	220	225	
gtt gat aaa tgg ttt aag cac ctg gaa agc gaa ctc ggg tta gaa gaa			777
Val Asp Lys Trp Phe Lys His Leu Glu Ser Glu Leu Gly Leu Glu Glu			
230	235	240	
aac gat aac caa caa caa cag cat aaa cag gga aca gaa gat gaa			825
Asn Asp Asn Gln Gln Gln Gln Gln His Lys Gln Gly Thr Glu Asp Glu			
245	250	255	
cat tca tca tca ctc ttg gag agt tac gag ctc ctc ata cat taa			870
His Ser Ser Ser Leu Leu Glu Ser Tyr Glu Leu Leu Ile His			
260	265	270	
tgaagccata aagcaagtcattttcacctt gaaaatggaa ttattagcta acctattggc			930
attattagta tataagcaag atcagatagg cgcatgtagt agcaacaacg aagaaacgtc			990
gaattgtaga caaaatgtag atattacaga gttgaaagat tgtatttttgc aaatgattgc			1050
tttgtagtga aatcaagtta tcacaaaaaa aaaaaaaa			1088

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Met Gly Lys Gly Arg Ala Pro Cys Cys Asp Lys Thr Lys Val Lys Arg
1 5 10 15

Gly Pro Trp Ser His Asp Glu Asp Leu Lys Leu Ile Ser Phe Ile His
20 25 30

Lys Asn Gly His Glu Asn Trp Arg Ser Leu Pro Lys Gln Ala Gly Leu
35 40 45

Leu Arg Cys Gly Lys Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg
50 55 60

Pro Asp Val Lys Arg Gly Asn Phe Ser Ala Glu Glu Asp Thr Ile
65 70 75 80

Ile Lys Leu His Gln Ser Phe Gly Asn Lys Trp Ser Lys Ile Ala Ser
85 90 95

Lys Leu Pro Gly Arg Thr Asp Asn Glu Ile Lys Asn Val Trp His Thr
100 105 110

His Leu Lys Lys Arg Leu Ser Ser Glu Thr Asn Leu Asn Ala Asp Glu
115 120 125

Ala Gly Ser Lys Gly Ser Leu Asn Glu Glu Glu Asn Ser Gln Glu Ser
130 135 140

Ser Pro Asn Ala Ser Met Ser Phe Ala Gly Ser Asn Ile Ser Ser Lys
145 150 155 160

Asp Asp Asp Ala Gln Ile Ser Gln Met Phe Glu His Ile Leu Thr Tyr
165 170 175

Ser Glu Phe Thr Gly Met Leu Gln Glu Val Asp Lys Pro Glu Leu Leu
180 185 190

Glu Met Pro Phe Asp Leu Asp Pro Asp Ile Trp Ser Phe Ile Asp Gly
195 200 205

Ser Asp Ser Phe Gln Gln Pro Glu Asn Arg Ala Leu Gln Glu Ser Glu

210

215

220

Glu Asp Glu Val Asp Lys Trp Phe Lys His Leu Glu Ser Glu Leu Gly
225 230 235 240

Leu Glu Glu Asn Asp Asn Gln Gln Gln Gln His Lys Gln Gly Thr
245 250 255

Glu Asp Glu His Ser Ser Ser Leu Leu Glu Ser Tyr Glu Leu Leu Ile
260 265 270

His

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Met Glu Met Ser Arg Gly Ser
1 5

aac agt ttt gac aat aag aag cct agt tgc caa aga ggt cac tgg aga 100
Asn Ser Phe Asp Asn Lys Lys Pro Ser Cys Gln Arg Gly His Trp Arg
10 15 20

cct gtt gaa gat gac aat ctc cgg caa ctc gtt gaa caa tac ggt ccc 148
Pro Val Glu Asp Asp Asn Leu Arg Gln Leu Val Glu Gln Tyr Gly Pro
25 30 35

aag aac tgg aat ttt att gct caa cat ctc tat gga aga tca ggg aaa 196
Lys Asn Trp Asn Phe Ile Ala Gln His Leu Tyr Gly Arg Ser Gly Lys
40 45 50 55

agc tgt aga tta aga tgg tac aac caa ctt gat cca aac atc acc aag 244
Ser Cys Arg Leu Arg Trp Tyr Asn Gln Leu Asp Pro Asn Ile Thr Lys
60 65 70

aaa ccc ttc acc gag gag gaa gaa gag aga ctg ctt aaa gct cat cgg 292
Lys Pro Phe Thr Glu Glu Glu Glu Glu Arg Leu Leu Lys Ala His Arg
75 80 85

atc caa ggg aat cgt tgg gcc tcc ata gcc cga ctg ttc ccc ggg agg 340
Ile Gln Gly Asn Arg Trp Ala Ser Ile Ala Arg Leu Phe Pro Gly Arg
90 95 100

acc gac aac gct gtc aaa aac cat ttt cat gtc atc atg gct aga cgc 388
Thr Asp Asn Ala Val Lys Asn His Phe His Val Ile Met Ala Arg Arg
105 110 115

aaa cgg gaa aac ttc tct tcc aca gct act tct acg ttc aac caa act 436
Lys Arg Glu Asn Phe Ser Ser Thr Ala Thr Ser Thr Phe Asn Gln Thr

120	125	130	135	
tgg cat act gtt ttg agc cct agt tct agt ctt aca agg cta aat aga				484
Trp His Thr Val Leu Ser Pro Ser Ser Ser Ser Leu Thr Arg Leu Asn Arg				
	140	145	150	
tcc cat ttc ggg cta tgg agg tat cga aag gat aag agt tgc ggt ctc				532
Ser His Phe Gly Leu Trp Arg Tyr Arg Lys Asp Lys Ser Cys Gly Leu				
	155	160	165	
tgg cct tac tct ttt gtt tca cca cct acg aat ggt caa ttt gga tct				580
Trp Pro Tyr Ser Phe Val Ser Pro Pro Thr Asn Gly Gln Phe Gly Ser				
	170	175	180	
tca tct gtc tct aac gta cac cac gaa att tat ctt gag agg aga aag				628
Ser Ser Val Ser Asn Val His His Glu Ile Tyr Leu Glu Arg Arg Lys				
	185	190	195	
tcg aaa gag ttg gtg gat cct cag aat tac aca ttt cat gca gcc aca				676
Ser Lys Glu Leu Val Asp Pro Gln Asn Tyr Thr Phe His Ala Thr				
	200	205	210	215
cca gat cat aag atg act tca aat gaa gat gga cca tcc atg gga gat				724
Pro Asp His Lys Met Thr Ser Asn Glu Asp Gly Pro Ser Met Gly Asp				
	220	225	230	
gat ggt gag aag aac gat gtt act ttc att gat ttt ctt ggt gtt gga				772
Asp Gly Glu Lys Asn Asp Val Thr Phe Ile Asp Phe Leu Gly Val Gly				
	235	240	245	
tta gct tct tag gttataacat cacaagtgcaa agcttttaag ggtttctatc				824
Leu Ala Ser				
	250			
attagggtta ggcacattt tcagcctttt gcttctctaa actctcatat ggatct				880
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Met Glu Met Ser Arg Gly Ser Asn Ser Phe Asp Asn Lys Lys Pro Ser				
1 5 10 15				
Cys Gln Arg Gly His Trp Arg Pro Val Glu Asp Asp Asn Leu Arg Gln				
20 25 30				
Leu Val Glu Gln Tyr Gly Pro Lys Asn Trp Asn Phe Ile Ala Gln His				
35 40 45				
Leu Tyr Gly Arg Ser Gly Lys Ser Cys Arg Leu Arg Trp Tyr Asn Gln				
50 55 60				
Leu Asp Pro Asn Ile Thr Lys Lys Pro Phe Thr Glu Glu Glu Glu Glu				
65 70 75 80				

Arg Leu Leu Lys Ala His Arg Ile Gln Gly Asn Arg Trp Ala Ser Ile
85 90 95

Ala Arg Leu Phe Pro Gly Arg Thr Asp Asn Ala Val Lys Asn His Phe
100 105 110

His Val Ile Met Ala Arg Arg Lys Arg Glu Asn Phe Ser Ser Thr Ala
115 120 125

Thr Ser Thr Phe Asn Gln Thr Trp His Thr Val Leu Ser Pro Ser Ser
130 135 140

Ser Leu Thr Arg Leu Asn Arg Ser His Phe Gly Leu Trp Arg Tyr Arg
145 150 155 160

Lys Asp Lys Ser Cys Gly Leu Trp Pro Tyr Ser Phe Val Ser Pro Pro
165 170 175

Thr Asn Gly Gln Phe Gly Ser Ser Ser Val Ser Asn Val His His Glu
180 185 190

Ile Tyr Leu Glu Arg Arg Lys Ser Lys Glu Leu Val Asp Pro Gln Asn
195 200 205

Tyr Thr Phe His Ala Ala Thr Pro Asp His Lys Met Thr Ser Asn Glu
210 215 220

Asp Gly Pro Ser Met Gly Asp Asp Gly Glu Lys Asn Asp Val Thr Phe
225 230 235 240

Ile Asp Phe Leu Gly Val Gly Leu Ala Ser
245 250

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Met Gly Asp Lys Gly Arg
1 5

agc tta aag atc aac aag aac atg gag gaa ttc acg aaa gtg gaa gaa 101
Ser Leu Lys Ile Asn Lys Asn Met Glu Glu Phe Thr Lys Val Glu Glu
10 15 20

gaa atg gac gta agg aga ggt cca tgg aca gtt gag gaa gat tta gag Glu Met Asp Val Arg Arg Gly Pro Trp Thr Val Glu Glu Asp Leu Glu 25 30 35	149
ctc atc aat tac att gct agt cat ggt gaa ggt cga tgg aac tct ctc Leu Ile Asn Tyr Ile Ala Ser His Gly Glu Gly Arg Trp Asn Ser Leu 40 45 50	197
gct cgt tgc gcc gaa ctc aaa agg acc gga aaa agc tgc aga ctt cgg Ala Arg Cys Ala Glu Leu Lys Arg Thr Gly Lys Ser Cys Arg Leu Arg 55 60 65 70	245
tgg ctg aac tat ctc cga cca gat gtg cgc cgt gga aac ata acc ctc Trp Leu Asn Tyr Leu Arg Pro Asp Val Arg Arg Gly Asn Ile Thr Leu 75 80 85	293
gaa gaa caa ctc ttg att ctt gaa ctt cac aca cgt tgg ggc aat aga Glu Glu Gln Leu Leu Ile Leu Glu Leu His Thr Arg Trp Gly Asn Arg 90 95 100	341
tgg tct aag att gca caa tat tta cca gga aga acg gat aac gag atc Trp Ser Lys Ile Ala Gln Tyr Leu Pro Gly Arg Thr Asp Asn Glu Ile 105 110 115	389
aaa aac tat tgg aga aca cgt gtt caa aag cat gca aaa cag ctt aaa Lys Asn Tyr Trp Arg Thr Arg Val Gln Lys His Ala Lys Gln Leu Lys 120 125 130	437
tgc gac gtg aac agt caa caa ttt aaa gac acc atg aag tat ctt tgg Cys Asp Val Asn Ser Gln Gln Phe Lys Asp Thr Met Lys Tyr Leu Trp 135 140 145 150	485
atg cct cgg ctc gta gaa agg atc caa gcc gcg tcc atc ggg tct gtt Met Pro Arg Leu Val Glu Arg Ile Gln Ala Ala Ser Ile Gly Ser Val 155 160 165	533
tcc atg tca tct tgc gtc acc acc tcc tca gat cag ttc gtg atc aac Ser Met Ser Ser Cys Val Thr Thr Ser Ser Asp Gln Phe Val Ile Asn 170 175 180	581
aac aac aac acc aac aac gtg gat aat ttg gct tta atg agt aac cct Asn Asn Asn Thr Asn Asn Val Asp Asn Leu Ala Leu Met Ser Asn Pro 185 190 195	629
aat ggt tac atc acg ccg gat aat tcc agc gtg gca gta tct cct gta Asn Gly Tyr Ile Thr Pro Asp Asn Ser Ser Val Ala Val Ser Pro Val 200 205 210	677
tca gat ttg acg gag tgt caa gtg agt agt gaa gtg tgg aag att ggt Ser Asp Leu Thr Glu Cys Gln Val Ser Ser Glu Val Trp Lys Ile Gly 215 220 225 230	725
cag gat gag aat ttg gtg gat cca aaa atg aca tcg ccg aat tat atg Gln Asp Glu Asn Leu Val Asp Pro Lys Met Thr Ser Pro Asn Tyr Met 235 240 245	773

gat aat agc agt gga cta tta aac gga gat ttt acg aag atg caa gat 821
 Asp Asn Ser Ser Gly Leu Leu Asn Gly Asp Phe Thr Lys Met Gln Asp
 250 255 260

caa agt gac ctt aat tgg ttt gaa aat att aat ggg atg gta cca aat 869
 Gln Ser Asp Leu Asn Trp Phe Glu Asn Ile Asn Gly Met Val Pro Asn
 265 270 275

tat tgc gac agt ttt tgg aac att gga aat gat gaa gac ttc tgg ctc 917
 Tyr Ser Asp Ser Phe Trp Asn Ile Gly Asn Asp Glu Asp Phe Trp Leu
 280 285 290

tta caa caa cat caa caa gtc cac gac aat gga agc ttc tga 959
 Leu Gln Gln His Gln Gln Val His Asp Asn Gly Ser Phe
 295 300 305

atagacaaga agctatgccc cc 981

<210> 208 <211> 307 <212> PRT <213> Arabidopsis thaliana <400> 208

Met Gly Asp Lys Gly Arg Ser Leu Lys Ile Asn Lys Asn Met Glu Glu
 1 5 10 15

Phe Thr Lys Val Glu Glu Glu Met Asp Val Arg Arg Gly Pro Trp Thr
 20 25 30

Val Glu Glu Asp Leu Glu Leu Ile Asn Tyr Ile Ala Ser His Gly Glu
 35 40 45

Gly Arg Trp Asn Ser Leu Ala Arg Cys Ala Glu Leu Lys Arg Thr Gly
 50 55 60

Lys Ser Cys Arg Leu Arg Trp Leu Asn Tyr Leu Arg Pro Asp Val Arg
 65 70 75 80

Arg Gly Asn Ile Thr Leu Glu Glu Gln Leu Leu Ile Leu Glu Leu His
 85 90 95

Thr Arg Trp Gly Asn Arg Trp Ser Lys Ile Ala Gln Tyr Leu Pro Gly
 100 105 110

Arg Thr Asp Asn Glu Ile Lys Asn Tyr Trp Arg Thr Arg Val Gln Lys
 115 120 125

His Ala Lys Gln Leu Lys Cys Asp Val Asn Ser Gln Gln Phe Lys Asp
 130 135 140

Thr Met Lys Tyr Leu Trp Met Pro Arg Leu Val Glu Arg Ile Gln Ala
145 150 155 160

Ala Ser Ile Gly Ser Val Ser Met Ser Ser Cys Val Thr Thr Ser Ser
165 170 175

Asp Gln Phe Val Ile Asn Asn Asn Asn Thr Asn Asn Val Asp Asn Leu
180 185 190

Ala Leu Met Ser Asn Pro Asn Gly Tyr Ile Thr Pro Asp Asn Ser Ser
195 200 205

Val Ala Val Ser Pro Val Ser Asp Leu Thr Glu Cys Gln Val Ser Ser
210 215 220

Glu Val Trp Lys Ile Gly Gln Asp Glu Asn Leu Val Asp Pro Lys Met
225 230 235 240

Thr Ser Pro Asn Tyr Met Asp Asn Ser Ser Gly Leu Leu Asn Gly Asp
245 250 255

Phe Thr Lys Met Gln Asp Gln Ser Asp Leu Asn Trp Phe Glu Asn Ile
260 265 270

Asn Gly Met Val Pro Asn Tyr Ser Asp Ser Phe Trp Asn Ile Gly Asn
275 280 285

Asp Glu Asp Phe Trp Leu Leu Gln Gln His Gln Gln Val His Asp Asn
290 295 300

Gly Ser Phe
305

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<222> (128)..(1567) <223> G1367

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aaaactaaaa atcaaaaatc toatcacctt ccttgctctg tattttttct ctctcactaa 120

atcctcc atg gat cct tct ctc tct gca acc aat gat cct cat cat cct 169
Met Asp Pro Ser Leu Ser Ala Thr Asn Asp Pro His His Pro
1 5 10

cct cct cct cag ttc aca tct ttc cct cct ttc acc aac acc aac ccc 217

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Phe	Ala	Ser	Pro	Asn	His	Pro	Phe	Phe	Thr	Gly	Pro	Thr	Ala	Val	Ala		
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Pro	Pro	Asn	Asn	Ile	His	Leu	Tyr	Gln	Ala	Ala	Pro	Pro	Gln	Gln	Pro		
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Gln	Thr	Ser	Pro	Val	Pro	Pro	His	Pro	Ser	Ile	Ser	His	Pro	Pro	Tyr		
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tct	gac	atg	att	tgc	acg	gcg	att	gca	gcg	tta	aac	gaa	cca	gat	ggg	409	
Ser	Asp	Met	Ile	Cys	Thr	Ala	Ile	Ala	Ala	Leu	Asn	Glu	Pro	Asp	Gly		
			80				85					90					
tca	agc	aag	caa	gct	att	tcg	agg	tac	ata	gag	aga	att	tac	act	ggg	457	
Ser	Ser	Lys	Gln	Ala	Ile	Ser	Arg	Tyr	Ile	Glu	Arg	Ile	Tyr	Thr	Gly		
					100					105					110		
att	cct	act	gct	cat	gga	gct	ttg	ttg	aca	cac	cat	ctc	aag	act	ttg	505	
Ile	Pro	Thr	Ala	His	Gly	Ala	Leu	Leu	Thr	His	His	Leu	Lys	Thr	Leu		
				115					120					125			
aag	acc	agt	ggg	att	ctt	gtc	atg	gtt	aag	aaa	tct	tac	aag	ctt	gct	553	
Lys	Thr	Ser	Gly	Ile	Leu	Val	Met	Val	Lys	Lys	Ser	Tyr	Lys	Leu	Ala		
			130					135					140				
tct	act	cct	cct	cct	cct	cct	cct	act	agt	gta	gct	cct	agt	ctt	gaa	601	
Ser	Thr	Pro	Pro	Pro	Pro	Pro	Thr	Ser	Val	Ala	Pro	Ser	Ser	Leu	Glu		
							150					155					
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Pro	Pro	Arg	Ser	Asp	Phe	Ile	Val	Asn	Glu	Asn	Gln	Pro	Leu	Pro	Asp		
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Pro	Val	Leu	Ala	Ser	Ser	Thr	Pro	Gln	Thr	Ile	Lys	Arg	Gly	Arg	Gly		
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cga	cct	cca	aaa	gct	aaa	cca	gat	gtt	gtt	caa	cct	caa	cct	ctg	act	745	
Arg	Pro	Pro	Lys	Ala	Lys	Pro	Asp	Val	Val	Gln	Pro	Gln	Pro	Leu	Thr		
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aat	gga	aaa	ctc	acc	tgg	gaa	cag	agt	gaa	tta	cct	gtc	tct	cga	cca	793	
Asn	Gly	Lys	Leu	Thr	Trp	Glu	Ser	Glu	Leu	Pro	Val	Ser	Arg	Pro			
				210				215					220				
gag	gag	ata	cag	ata	cag	ccg	cca	cag	tta	ccg	tta	cag	cca	cag	cag	841	
Glu	Glu	Ile	Gln	Ile	Gln	Pro	Pro	Gln	Leu	Pro	Leu	Gln	Pro	Gln	Gln		
				225			230						235				
ccg	gtt	aag	aga	ccg	ccg	ggt	cgt	cct	aga	aaa	gat	gga	act	tcg	ccg	889	
Pro	Val	Lys	Arg	Pro	Pro	Gly	Arg	Pro	Arg	Lys	Asp	Gly	Thr	Ser	Pro		

240	245	250	
acg gtg aag cca gct gct tct gtt tcc ggt ggt gtg gag act gtg aaa Thr Val Lys Pro Ala Ala Ser Val Ser Gly Gly Val Glu Thr Val Lys 255 260 265 270			937
cga aga ggt aga cct ccg agt gga aga gct gct ggg agg gag aga aag Arg Arg Gly Arg Pro Pro Ser Gly Arg Ala Gly Arg Glu Arg Lys 275 280 285			985
cct ata gta gtc tca gct cca gct tca gtg ttc ccg tat gtt gct aat Pro Ile Val Val Ser Ala Pro Ala Ser Val Phe Pro Tyr Val Ala Asn 290 295 300			1033
ggt ggt gtt aga cgc cga ggg aga cca aag aga gtt gac gct ggt ggt Gly Gly Val Arg Arg Arg Gly Arg Pro Lys Arg Val Asp Ala Gly Gly 305 310 315			1081
gct tcc tct gtt gct cca cca cca cca cca cca act gta gag agt Ala Ser Ser Val Ala Pro Pro Pro Pro Pro Thr Asn Val Glu Ser 320 325 330			1129
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gct cgt act gga aaa ccc gta gga aga ccc aga aag aat gcg gtg tca Ala Arg Thr Gly Lys Pro Val Gly Arg Pro Arg Lys Asn Ala Val Ser 370 375 380			1273
gtg gga gct tct gga cga caa gat ggt gac tat gga gaa ctg aag aag Val Gly Ala Ser Gly Arg Gln Asp Gly Asp Tyr Gly Glu Leu Lys Lys 385 390 395			1321
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aaa tcc gag ata gga gga agt gga aat caa gca gtg gtt caa gcc ata Lys Ser Glu Ile Gly Gly Ser Gly Asn Gln Ala Val Val Gln Ala Ile 415 420 425 430			1417
cag gac ctg gaa ggg ata gca gag aca aca aac gag cca aag cac atg Gln Asp Leu Glu Gly Ile Ala Glu Thr Thr Asn Glu Pro Lys His Met 435 440 445			1465
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gca gag ggt caa gga cag aca gaa gca gag gca atg caa gaa gct ctg Ala Glu Gly Gln Gly Gln Thr Glu Ala Glu Ala Met Gln Glu Ala Leu 465 470 475			1561

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Phe

gtgttacatg aaatttttaa tcttataagg gtgtttgcag gagaaaaaca aaaagaacaa 1677

tgtgatgaac tgatgatgat gattgtgtct ctaaccaaac aacaaggaga ggtagggtaa 1737

tgtctgtaaa gtgaattagg atgttaccat tgttcatgct tcccatctct ctccatcgtc 1797

catactctgt taggcagctt tttctttgt tccctcgtgt tttttttaga ctgttgtgtc 1857

tcttattcta ttttgtctcc ttaggccttt taggagttgt tgttgatgtt tatcaaaaaac 1917

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35 40 45

Asn Asn Ile His Leu Tyr Gln Ala Ala Pro Pro Gln Gln Pro Gln Thr
50 55 60

Ser Pro Val Pro Pro His Pro Ser Ile Ser His Pro Pro Tyr Ser Asp
65 70 75 80

Met Ile Cys Thr Ala Ile Ala Ala Leu Asn Glu Pro Asp Gly Ser Ser
85 90 95

Lys Gln Ala Ile Ser Arg Tyr Ile Glu Arg Ile Tyr Thr Gly Ile Pro
100 105 110

Thr Ala His Gly Ala Leu Leu Thr His His Leu Lys Thr Leu Lys Thr
115 120 125

Ser Gly Ile Leu Val Met Val Lys Lys Ser Tyr Lys Leu Ala Ser Thr
130 135 140

Pro Pro Pro Pro Pro Pro Thr Ser Val Ala Pro Ser Leu Glu Pro Pro

145	150	155	160
Arg Ser Asp Phe	Ile Val Asn Glu Asn Gln Pro Leu Pro Asp Pro Val		
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Leu Ala Ser Ser Thr Pro Gln Thr	Ile Lys Arg Gly Arg Gly Arg Pro		
	180	185	190
Pro Lys Ala Lys Pro Asp Val Val Gln Pro Gln Pro Leu Thr Asn Gly			
	195	200	205
Lys Leu Thr Trp Glu Gln Ser Glu Leu Pro Val Ser Arg Pro Glu Glu			
	210	215	220
Ile Gln Ile Gln Pro Pro Gln Leu Pro Leu Gln Pro Gln Gln Pro Val			
	225	230	235
Lys Arg Pro Pro Gly Arg Pro Arg Lys Asp Gly Thr Ser Pro Thr Val			
	245	250	255
Lys Pro Ala Ala Ser Val Ser Gly Gly Val Glu Thr Val Lys Arg Arg			
	260	265	270
Gly Arg Pro Pro Ser Gly Arg Ala Ala Gly Arg Glu Arg Lys Pro Ile			
	275	280	285
Val Val Ser Ala Pro Ala Ser Val Phe Pro Tyr Val Ala Asn Gly Gly			
	290	295	300
Val Arg Arg Arg Gly Arg Pro Lys Arg Val Asp Ala Gly Gly Ala Ser			
	305	310	315
Ser Val Ala Pro Pro Pro Pro Pro Pro Thr Asn Val Glu Ser Gly Gly			
	325	330	335
Glu Glu Val Ala Val Lys Lys Arg Gly Arg Gly Arg Pro Pro Lys Ile			
	340	345	350
Gly Gly Val Ile Arg Lys Pro Met Lys Pro Met Arg Ser Phe Ala Arg			
	355	360	365
Thr Gly Lys Pro Val Gly Arg Pro Arg Lys Asn Ala Val Ser Val Gly			
	370	375	380

Ala Ser Gly Arg Gln Asp Gly Asp Tyr Gly Glu Leu Lys Lys Lys Phe
385 390 395 400

Glu Leu Phe Gln Ala Arg Ala Lys Asp Ile Val Ile Val Leu Lys Ser
405 410 415

Glu Ile Gly Gly Ser Gly Asn Gln Ala Val Val Gln Ala Ile Gln Asp
420 425 430

Leu Glu Gly Ile Ala Glu Thr Thr Asn Glu Pro Lys His Met Glu Glu
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Val Gln Leu Pro Asp Glu Glu His Leu Glu Thr Glu Pro Glu Ala Glu
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Gly Gln Gly Gln Thr Glu Ala Glu Ala Met Gln Glu Ala Leu Phe
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aaaactcttt atctctgaat cttgagtttc ttgtagaaga agaagcaatt ttgaatcttt 180

cgtaatacata aagattcgtg gaggatctct actgatttgt cggaatctct cactacagaa 240

tcacttgatc ttatgtccgg atg gag gag aga gaa gga acc aac atc aac aac 293
Met Glu Glu Arg Glu Gly Thr Asn Ile Asn Asn
1 5 10

aac atc act agc agt ttc ggc ttg aag cag caa cat gaa gct gct gct 341
Asn Ile Thr Ser Ser Phe Gly Leu Lys Gln Gln His Glu Ala Ala Ala
15 20 25

tct gat ggt ggt tac tca atg gac cca cca cca aga ccc gaa aac cct 389
Ser Asp Gly Gly Tyr Ser Met Asp Pro Pro Pro Arg Pro Glu Asn Pro
30 35 40

aac ccg ttt tta gtc cca ccc act act gtc ccc gog gcc gcc acc gta 437
Asn Pro Phe Leu Val Pro Pro Thr Thr Val Pro Ala Ala Ala Thr Val
45 50 55

gca gca gct gtt act gag aat gcg gct act ccg ttt agc tta aca atg 485
Ala Ala Ala Val Thr Glu Asn Ala Ala Thr Pro Phe Ser Leu Thr Met
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cog Pro	aga Arg	aag Lys	tat Tyr 95	aat Asn	ccc Pro	gat Asp	ggg Gly	act Thr 100	ctt Leu	gtc Val	gtg Val	act Thr	tta Leu 105	tcg Ser	ccg Pro	581
atg Met	cca Pro	atc Ile 110	tcg Ser	tcc Ser	tct Ser	gtt Val	cgg Pro 115	ttg Leu	acg Thr	tcg Ser	gag Glu	ttt Phe 120	cct Pro	cca Pro	agg Arg	629
aaa Lys	cga Arg 125	gga Gly	aga Arg	gga Gly	cgt Arg	ggc Gly 130	aag Lys	tct Ser	aat Asn	cga Arg	tgg Trp 135	ctc Leu	aag Lys	aag Lys	tct Ser	677
caa Gln 140	atg Met	ttc Phe	caa Gln	ttc Phe	gat Asp 145	aga Arg	agt Ser	cct Pro	gtt Val	gat Asp 150	acc Thr	aat Asn	ttg Leu	gca Ala	ggt Gly 155	725
gta Val	gga Gly	act Thr	gct Ala	gat Asp 160	ttt Phe	gtt Val	ggt Gly	gcc Ala	aac Asn 165	ttt Phe	aca Thr	cct Pro	cat His	gta Val 170	ctg Leu	773
atc Ile	gtc Val	aac Asn 175	gcc Ala	gga Gly	gag Glu	gat Asp	gtg Val	acg Thr 180	atg Met	aag Lys	ata Ile	atg Met	aca Thr 185	ttc Phe	tct Ser	821
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ggt Gly	caa Gln 285	gag Glu	cag Gln	tca Ser	cag Gln	ctg Leu 290	gag Glu	cta Leu	gca Ala	aaa Lys	gaa Glu 295	aga Arg	cgg Arg	cta Leu	aga Arg	1157

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 Phe Gly Ala Gln Pro Ser Ile Ser Phe Asn Ile Ser Ala Glu Glu
 300 305 310 315

cgg aag gcg aga ttc gag agg ctt aac aag tct gtt gct att cct gca 1253
 Arg Lys Ala Arg Phe Glu Arg Leu Asn Lys Ser Val Ala Ile Pro Ala
 320 325 330

cca acc act tca tac acg cat gta aac aca aca aat gcg gtt cac agt 1301
 Pro Thr Thr Ser Tyr Thr His Val Asn Thr Thr Asn Ala Val His Ser
 335 340 345

tac tat aca aac tcg gtt aac cat gtc aag gat ccc ttc tcg tct atc 1349
 Tyr Tyr Thr Asn Ser Val Asn His Val Lys Asp Pro Phe Ser Ser Ile
 350 355 360

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 365 370 375

gaa gat gat gat gaa tta gaa ggt gaa gac gaa gaa ttc gga ggc gat 1445
 Glu Asp Asp Asp Glu Leu Glu Gly Glu Asp Glu Glu Phe Gly Gly Asp
 380 385 390 395

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 Ser Gln Ser Asp Asn Glu Ile Pro Ser
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 35 40 45
 Pro Pro Thr Thr Val Pro Ala Ala Ala Thr Val Ala Ala Ala Val Thr
 50 55 60
 Glu Asn Ala Ala Thr Pro Phe Ser Leu Thr Met Pro Thr Glu Asn Thr
 65 70 75 80

Ser Ala Glu Gln Leu Lys Lys Lys Arg Gly Arg Pro Arg Lys Tyr Asn
 85 90 95

Pro Asp Gly Thr Leu Val Val Thr Leu Ser Pro Met Pro Ile Ser Ser
 100 105 110

Ser Val Pro Leu Thr Ser Glu Phe Pro Pro Arg Lys Arg Gly Arg Gly
 115 120 125

Arg Gly Lys Ser Asn Arg Trp Leu Lys Lys Ser Gln Met Phe Gln Phe
 130 135 140

Asp Arg Ser Pro Val Asp Thr Asn Leu Ala Gly Val Gly Thr Ala Asp
 145 150 155 160

Phe Val Gly Ala Asn Phe Thr Pro His Val Leu Ile Val Asn Ala Gly
 165 170 175

Glu Asp Val Thr Met Lys Ile Met Thr Phe Ser Gln Gln Gly Ser Arg
 180 185 190

Ala Ile Cys Ile Leu Ser Ala Asn Gly Pro Ile Ser Asn Val Thr Leu
 195 200 205

Arg Gln Ser Met Thr Ser Gly Gly Thr Leu Thr Tyr Glu Gly Arg Phe
 210 215 220

Glu Ile Leu Ser Leu Thr Gly Ser Phe Met Gln Asn Asp Ser Gly Gly
 225 230 235 240

Thr Arg Ser Arg Ala Gly Gly Met Ser Val Cys Leu Ala Gly Pro Asp
 245 250 255

Gly Arg Val Phe Gly Gly Gly Leu Ala Gly Leu Phe Leu Ala Ala Gly
 260 265 270

Pro Val Gln Val Met Val Gly Thr Phe Ile Ala Gly Gln Glu Gln Ser
 275 280 285

Gln Leu Glu Leu Ala Lys Glu Arg Arg Leu Arg Phe Gly Ala Gln Pro
 290 295 300

Ser Ser Ile Ser Phe Asn Ile Ser Ala Glu Glu Arg Lys Ala Arg Phe

305 310 315 320

Glu Arg Leu Asn Lys Ser Val Ala Ile Pro Ala Pro Thr Thr Ser Tyr
325 330 335

Thr His Val Asn Thr Thr Asn Ala Val His Ser Tyr Tyr Thr Asn Ser
340 345 350

Val Asn His Val Lys Asp Pro Phe Ser Ser Ile Pro Val Gly Gly Gly
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Met Tyr Gly
1

aag agg cct ttt gga ggt gat gaa tct gaa gaa agg gaa gaa gat gag 166
Lys Arg Pro Phe Gly Gly Asp Glu Ser Glu Glu Arg Glu Glu Asp Glu
5 10 15

aac ttg ttc ccg gtc ttc tcg gcc cga tct caa cac gac atg cgt gtt 214
Asn Leu Phe Pro Val Phe Ser Ala Arg Ser Gln His Asp Met Arg Val
20 25 30 35

atg gtc tcg gcc ttg act caa gta atc gga aac caa caa agc aaa tct 262
Met Val Ser Ala Leu Thr Gln Val Ile Gly Asn Gln Gln Ser Lys Ser
40 45 50

cat gat aac atc agc tct att gat gat aac tat cct tct gtg tat aat 310
His Asp Asn Ile Ser Ser Ile Asp Asp Asn Tyr Pro Ser Val Tyr Asn
55 60 65

cca caa gac cct aat caa caa gtt gcg cct act cat caa gac caa ggg 358
Pro Gln Asp Pro Asn Gln Gln Val Ala Pro Thr His Gln Asp Gln Gly
70 75 80

gac ttg agg agg aga cat tat aga ggt gta agg caa agg cca tgg gga	406
Asp Leu Arg Arg Arg His Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly	
85 90 95	
aag tgg gca gct gaa atc cga gac cca aaa aag gcg gca cgt gtg tgg	454
Lys Trp Ala Ala Glu Ile Arg Asp Pro Lys Lys Ala Ala Arg Val Trp	
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Leu Gly Thr Phe Glu Thr Ala Glu Ser Ala Ala Leu Ala Tyr Asp Glu	
120 125 130	
gca gcc cta aag ttc aaa gga agc aaa gca aaa ctc aat ttc ccg gag	550
Ala Ala Leu Lys Phe Lys Gly Ser Lys Ala Lys Leu Asn Phe Pro Glu	
135 140 145	
agg gtt cag ctt gga agt aac tct aca tat tac tcc tcc aac caa att	598
Arg Val Gln Leu Gly Ser Asn Ser Thr Tyr Tyr Ser Ser Asn Gln Ile	
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cca caa atg gaa cca caa agt ata ccg aac tat aat caa tac tat cat	646
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Asp Ala Ser Ser Gly Asp Met Leu Ser Phe Asn Leu Gly Gly Tyr	
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ggg agt ggt acc gga tat tca atg tct cat gat aat agt act acg act	742
Gly Ser Gly Thr Gly Tyr Ser Met Ser His Asp Asn Ser Thr Thr	
200 205 210	
gct gct aca act tct tcg tct tct ggt ggc tct tct agg caa caa gaa	790
Ala Ala Thr Thr Ser Ser Ser Ser Gly Gly Ser Ser Arg Gln Gln Glu	
215 220 225	
gag caa gat tat gcc aga ttc tgg cgc ttt ggg gat tct tct tcc tct	838
Glu Gln Asp Tyr Ala Arg Phe Trp Arg Phe Gly Asp Ser Ser Ser	
230 235 240	
cct cat tcg gga tat taa ttaggagatt tgatcagtta cttgtgatga	886
Pro His Ser Gly Tyr	
245	
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Val	Tyr	Asn	Pro	Gln	Asp	Pro	Asn	Gln	Gln	Val	Ala	Pro	Thr	His	Gln
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85									90			95			
Pro	Trp	Gly	Lys	Trp	Ala	Ala	Glu	Ile	Arg	Asp	Pro	Lys	Lys	Ala	Ala
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115						120				125					
Tyr	Asp	Glu	Ala	Ala	Leu	Lys	Phe	Lys	Gly	Ser	Lys	Ala	Lys	Leu	Asn
130						135				140					
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145					150			155			160				
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165						170				175					
Tyr	Tyr	His	Asp	Ala	Ser	Ser	Gly	Asp	Met	Leu	Ser	Phe	Asn	Leu	Gly
180							185				190				
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195						200				205					
Thr	Thr	Thr	Ala	Ala	Thr	Thr	Ser	Ser	Ser	Ser	Gly	Gly	Ser	Ser	Arg
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gaa caa gac cag tca gct tta gat ctc ata acc caa cac ctt ctt act 101
Glu Gln Asp Gln Ser Ala Leu Asp Leu Ile Thr Gln His Leu Leu Thr
10 15 20 25

gat ttc cct tcc tta gac acc ttt gcc tcc acc atc cac cac tgc acc 149
Asp Phe Pro Ser Leu Asp Thr Phe Ala Ser Thr Ile His Cys Thr
30 35 40

acc tca act cta agc caa cgc aaa cca cct ctt gcc act ata gca gtt 197
Thr Ser Thr Leu Ser Gln Arg Lys Pro Pro Leu Ala Thr Ile Ala Val
45 50 55

cct act act gca ccg gtg gtt caa gag aat gat caa agg cat tac aga 245
Pro Thr Thr Ala Pro Val Val Gln Glu Asn Asp Gln Arg His Tyr Arg
60 65 70

ggc gtc agg aga aga cca tgg ggt aag tat gcg gct gag atc aga gac 293
Gly Val Arg Arg Arg Pro Trp Gly Lys Tyr Ala Ala Glu Ile Arg Asp
75 80 85

cca aac aag aaa ggt gtt cgt gtc tgg tta gcc act ttt gac aca gcc 341
Pro Asn Lys Lys Gly Val Arg Val Trp Leu Gly Thr Phe Asp Thr Ala
90 95 100 105

atg gaa gct gca aga ggt tat gac aag gca gct ttt aaa cta cga gga 389
Met Glu Ala Ala Arg Gly Tyr Asp Lys Ala Ala Phe Lys Leu Arg Gly
110 115 120

agc aaa gct att ctt aac ttc cca ctt gaa gca gga aag cat gag gac 437
Ser Lys Ala Ile Leu Asn Phe Pro Leu Glu Ala Gly Lys His Glu Asp
125 130 135

ttg gga gac aac aag aag act att tct tta aaa gca aag agg aag aga 485
Leu Gly Asp Asn Lys Lys Thr Ile Ser Leu Lys Ala Lys Arg Lys Arg
140 145 150

cag gtg acg gag gat gaa agc cag ctg atc agc cgt aaa gct gtt aag 533
Gln Val Thr Glu Asp Glu Ser Gln Leu Ile Ser Arg Lys Ala Val Lys
155 160 165

agg gaa gaa gct cag gtt cag gct gat gct tgt cca tta acg cca tca 581
Arg Glu Glu Ala Gln Val Gln Ala Asp Ala Cys Pro Leu Thr Pro Ser
170 175 180 185

agt tgg aag ggg ttt tgg gac gga gca gac agt aaa gac atg gga ata 629
Ser Trp Lys Gly Phe Trp Asp Gly Ala Asp Ser Lys Asp Met Gly Ile

Gln Leu Ile Ser Arg Lys Ala Val Lys Arg Glu Glu Ala Gln Val Gln
165 170 175

Ala Asp Ala Cys Pro Leu Thr Pro Ser Ser Trp Lys Gly Phe Trp Asp
180 185 190

Gly Ala Asp Ser Lys Asp Met Gly Ile Phe Ser Val Pro Leu Leu Ser
195 200 205

Pro Cys Pro Ser Leu Gly His Ser Gln Leu Val Val Thr
210 215 220

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aatcttcttg ttacaaagca tcaatctctt gttttaccaa tttctctctt ttattctctt 180
tttgcccttt acttttccta actttgggtct ttatatataa acacacgaca caaagaagaa 240
cacacataag ttaaaactat tacaacagtt ttaaagagag agatttaaaa a atg gag 297
Met Glu
1
aca gag aag aaa gtt tct ctc cca aga atc tta cga atc tct gtt act 345
Thr Glu Lys Lys Val Ser Leu Pro Arg Ile Leu Arg Ile Ser Val Thr
5 10 15
gat cct tac gca aca gat tcg tca agc gac gaa gaa gaa gaa gtt gat 393
Asp Pro Tyr Ala Thr Asp Ser Ser Ser Asp Glu Glu Glu Glu Val Asp
20 25 30
ttt gat gca tta tct aca aaa cga cgt cgt gtt aag aag tac gtg aag 441
Phe Asp Ala Leu Ser Thr Lys Arg Arg Arg Val Lys Lys Tyr Val Lys
35 40 45 50
gaa gtg gtg ctt gat tcg gtg gtt tct gat aaa gag aag ccg atg aag 489
Glu Val Val Leu Asp Ser Val Val Ser Asp Lys Glu Lys Pro Met Lys
55 60 65
aag aag aga aag aag cgc gtt gtt act gtt cca gtg gtt gtt acg acg 537
Lys Lys Arg Lys Lys Arg Val Val Thr Val Pro Val Val Val Thr Thr
70 75 80
gcg acg agg aag ttt cgt gga gtg agg caa aga ccg tgg gga aaa tgg 585
Ala Thr Arg Lys Phe Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Trp
85 90 95
gcg gcg gag att aga gat ccg agt aga cgt gtt agg gtt tgg tta ggt 633

Ala Ala Glu Ile Arg Asp Pro Ser Arg Arg Val Arg Val Trp Leu Gly	
100 105	
act ttt gac acg gcg gag gaa gct gcc att gtt tac gat aac gca gct	681
Thr Phe Asp Thr Ala Glu Glu Ala Ala Ile Val Tyr Asp Asn Ala Ala	
115 120 125 130	
att cag cta cgt ggt cct aac gca gag ctt aac ttc cct cct cct ccg	729
Ile Gln Leu Arg Gly Pro Asn Ala Glu Leu Asn Phe Pro Pro Pro Pro	
135 140 145	
gtg acg gag aat gtt gaa gaa gct tcg acg gag gtg aaa gga gtt tcg	777
Val Thr Glu Asn Val Glu Glu Ala Ser Thr Glu Val Lys Gly Val Ser	
150 155 160	
gat ttt atc att ggc ggt gga gaa tgt ctt cgt tcg ccg gtt tct gtt	825
Asp Phe Ile Ile Gly Gly Gly Cys Leu Arg Ser Pro Val Ser Val	
165 170 175	
ctc gaa tct ccg ttc tcc ggc gag tct act gcg gtt aaa gag gag ttt	873
Leu Glu Ser Pro Phe Ser Gly Glu Ser Thr Ala Val Lys Glu Glu Phe	
180 185 190	
gtc ggt gta tcg acg gcg gag att gtg gtt aaa aag gag ccg tct ttt	921
Val Gly Val Ser Thr Ala Glu Ile Val Val Lys Lys Glu Pro Ser Phe	
195 200 205 210	
aac ggt tca gat ttc tcg gcg ccg ttg ttc tcg gac gac gac gtt ttt	969
Asn Gly Ser Asp Phe Ser Ala Pro Leu Phe Ser Asp Asp Asp Val Phe	
215 220 225	
ggt ttc tcg acg tcg atg agt gaa agt ttc ggc ggc gat tta ttt gga	1017
Gly Phe Ser Thr Ser Met Ser Glu Ser Phe Gly Gly Asp Leu Phe Gly	
230 235 240	
gat aat ctt ttt gcg gat atg agt ttt gga tcc ggg ttt gga ttc ggg	1065
Asp Asn Leu Phe Ala Asp Met Ser Phe Gly Ser Gly Phe Gly Gly	
245 250 255	
tct ggg tct gga ttc tcc agc tgg cac gtt gag gac cat ttt caa gat	1113
Ser Gly Ser Gly Phe Ser Ser Trp His Val Glu Asp His Phe Gln Asp	
260 265 270	
att ggg gat tta ttc ggg tcg gat cct gtc tta act gtt taa	1155
Ile Gly Asp Leu Phe Gly Ser Asp Pro Val Leu Thr Val	
275 280 285	
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aaaaaaaaac gccgatttat tttttgaatg aagatttggt aaata	1260
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20 25 30

Val Asp Phe Asp Ala Leu Ser Thr Lys Arg Arg Arg Val Lys Lys Tyr
35 40 45

Val Lys Glu Val Val Leu Asp Ser Val Val Ser Asp Lys Glu Lys Pro
50 55 60

Met Lys Lys Lys Arg Lys Lys Arg Val Val Thr Val Pro Val Val Val
65 70 75 80

Thr Thr Ala Thr Arg Lys Phe Arg Gly Val Arg Gln Arg Pro Trp Gly
85 90 95

Lys Trp Ala Ala Glu Ile Arg Asp Pro Ser Arg Arg Val Arg Val Trp
100 105 110

Leu Gly Thr Phe Asp Thr Ala Glu Glu Ala Ala Ile Val Tyr Asp Asn
115 120 125

Ala Ala Ile Gln Leu Arg Gly Pro Asn Ala Glu Leu Asn Phe Pro Pro
130 135 140

Pro Pro Val Thr Glu Asn Val Glu Glu Ala Ser Thr Glu Val Lys Gly
145 150 155 160

Val Ser Asp Phe Ile Ile Gly Gly Gly Glu Cys Leu Arg Ser Pro Val
165 170 175

Ser Val Leu Glu Ser Pro Phe Ser Gly Glu Ser Thr Ala Val Lys Glu
180 185 190

Glu Phe Val Gly Val Ser Thr Ala Glu Ile Val Val Lys Lys Glu Pro
195 200 205

Ser Phe Asn Gly Ser Asp Phe Ser Ala Pro Leu Phe Ser Asp Asp Asp
210 215 220

Val Phe Gly Phe Ser Thr Ser Met Ser Glu Ser Phe Gly Gly Asp Leu
225 230 235 240

Phe Gly Asp Asn Leu Phe Ala Asp Met Ser Phe Gly Ser Gly Phe Gly
245 250 255

Phe Gly Ser Gly Ser Gly Phe Ser Ser Trp His Val Glu Asp His Phe
260 265 270

Gln Asp Ile Gly Asp Leu Phe Gly Ser Asp Pro Val Leu Thr Val
275 280 285

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Met Gly Lys Glu Val Met Val Ser Asp Tyr Gly Asp Asp Asp
1 5 10

gga gaa gac gcc ggc ggc ggc gat gaa tat agg att ccg gaa tgg gaa 97
Gly Glu Asp Ala Gly Gly Gly Asp Glu Tyr Arg Ile Pro Glu Trp Glu
15 20 25 30

att ggt tta ccc aac gga gat gat ttg act ccg tta tct caa tat cta 145
Ile Gly Leu Pro Asn Gly Asp Asp Leu Thr Pro Leu Ser Gln Tyr Leu
35 40 45

gtc ccg tcg att ctc gcg tta gct ttc agc atg atc cca gaa cga agc 193
Val Pro Ser Ile Leu Ala Leu Ala Phe Ser Met Ile Pro Glu Arg Ser
50 55 60

cgt aca att cac gac gtc aat cgc gcg tcg caa atc acg ctc tct tcg 241
Arg Thr Ile His Asp Val Asn Arg Ala Ser Gln Ile Thr Leu Ser Ser
65 70 75

ttg aga agc agt acc aat gct tcg tct gtg atg gag gag gtc gtg gat 289
Leu Arg Ser Ser Thr Asn Ala Ser Ser Val Met Glu Glu Val Val Asp
80 85 90

cga gtt gaa tcg agt gtt cca gga tca gat ccg aag aaa cag aag aaa 337
Arg Val Glu Ser Ser Val Pro Gly Ser Asp Pro Lys Lys Gln Lys Lys
95 100 105 110

tog gat ggt ggt gaa gca gcg gcg gtg gag gat tcc acg gcg gag gaa 385
Ser Asp Gly Gly Glu Ala Ala Ala Val Glu Asp Ser Thr Ala Glu Glu
115 120 125

gga gac tcc ggg cct gaa gac gcg tct ggg aag aca tcg aaa cga ccg 433
Gly Asp Ser Gly Pro Glu Asp Ala Ser Gly Lys Thr Ser Lys Arg Pro
130 135 140

cgt tta gtg tgg aca ccg cag cta cac aag aga ttt gtg gac gtt gtg 481
Arg Leu Val Trp Thr Pro Gln Leu His Lys Arg Phe Val Asp Val Val
145 150 155

gct cat cta ggg att aaa aac gca gtg ccg aag acg att atg cag ctg 529

Ala His Leu Gly Ile Lys Asn Ala Val Pro Lys Thr Ile Met Gln Leu
160 165 170

atg aac gtg gaa gga ctt act cgt gag aac gtt gcg tct cat ttg cag 577
Met Asn Val Glu Gly Leu Thr Arg Glu Asn Val Ala Ser His Leu Gln
175 180 185 190

aaa tat agg ctt tac ctt aaa cgg att caa gga ttg acg acg gaa gaa 625
Lys Tyr Arg Leu Tyr Leu Lys Arg Ile Gln Gly Leu Thr Thr Gln Glu
195 200 205

gat cct tat tgg tgg tgg gat cag ctc ttc tct tca acg ccg gtt cct 673
Asp Pro Tyr Ser Ser Asp Gln Leu Phe Ser Ser Thr Pro Val Pro
210 215 220

cca cag agc ttt caa gac ggc gga gga agt aac gga aag ttg ggg gtt 721
Pro Gln Ser Phe Gln Asp Gly Gly Ser Asn Gly Lys Leu Gly Val
225 230 235

ccg gtt ccg gtt ccg tgg atg gtg cct att cca ggc tat ggg aat caa 769
Pro Val Pro Val Pro Ser Met Val Pro Ile Pro Gly Tyr Gly Asn Gln
240 245 250

atg ggt atg caa gga tat tat caa cag tat agt aac cat ggc aat gaa 817
Met Gly Met Gln Gly Tyr Tyr Gln Gln Tyr Ser Asn His Gly Asn Glu
255 260 265 270

tca aac caa tat atg atg cag cag aat aag ttt gga aca atg gtg aca 865
Ser Asn Gln Tyr Met Met Gln Gln Asn Lys Phe Gly Thr Met Val Thr
275 280 285

tat cct tct gtt ggt ggt ggt gac gtg aat gac aag taa atggatctta 914
Tyr Pro Ser Val Gly Gly Gly Asp Val Asn Asp Lys
290 295

aaggtctata atttgcctata cagagagata ctggttcttg gcttatggtt tattttccca 974

cttcatgagg ttgttgtgac ttttaattct ccatgttttc cacacaagtc tttattgcct 1034

ttgtatagaa aatgatttcg agaaaatcac tgggaagcctt ggtattgttg gaggatgaag 1094

ccttctatga atgatttagt ttctactgt ctccattctt tatgaggtaa taaagccttc 1154

ttttgctcat cgctttagt cttcttaaat tcaagacagc gtcacatggt ttgttcggtta 1214

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tgataaa 1281

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Leu Pro Asn Gly Asp Asp Leu Thr Pro Leu Ser Gln Tyr Leu Val Pro		
35	40	45
Ser Ile Leu Ala Leu Ala Phe Ser Met Ile Pro Glu Arg Ser Arg Thr		
50	55	60
Ile His Asp Val Asn Arg Ala Ser Gln Ile Thr Leu Ser Ser Leu Arg		
65	70	75
Ser Ser Thr Asn Ala Ser Ser Val Met Glu Glu Val Val Asp Arg Val		
85	90	95
Glu Ser Ser Val Pro Gly Ser Asp Pro Lys Lys Gln Lys Lys Ser Asp		
100	105	110
Gly Gly Glu Ala Ala Ala Val Glu Asp Ser Thr Ala Glu Glu Gly Asp		
115	120	125
Ser Gly Pro Glu Asp Ala Ser Gly Lys Thr Ser Lys Arg Pro Arg Leu		
130	135	140
Val Trp Thr Pro Gln Leu His Lys Arg Phe Val Asp Val Val Ala His		
145	150	155
Leu Gly Ile Lys Asn Ala Val Pro Lys Thr Ile Met Gln Leu Met Asn		
165	170	175
Val Glu Gly Leu Thr Arg Glu Asn Val Ala Ser His Leu Gln Lys Tyr		
180	185	190
Arg Leu Tyr Leu Lys Arg Ile Gln Gly Leu Thr Thr Glu Glu Asp Pro		
195	200	205
Tyr Ser Ser Ser Asp Gln Leu Phe Ser Ser Thr Pro Val Pro Pro Gln		
210	215	220
Ser Phe Gln Asp Gly Gly Gly Ser Asn Gly Lys Leu Gly Val Pro Val		
225	230	235
Pro Val Pro Ser Met Val Pro Ile Pro Gly Tyr Gly Asn Gln Met Gly		
245	250	255

Met Gln Gly Tyr Tyr Gln Gln Tyr Ser Asn His Gly Asn Glu Ser Asn
260 265 270

Gln Tyr Met Met Gln Gln Asn Lys Phe Gly Thr Met Val Thr Tyr Pro
275 280 285

Ser Val Gly Gly Gly Asp Val Asn Asp Lys
290 295

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Met Glu Val Ser
1
aac tct tgt tct tca ttt tct tca tcc tct gtc gac agt act aaa cct 164
Asn Ser Cys Ser Ser Phe Ser Ser Ser Ser Val Asp Ser Thr Lys Pro
5 10 15 20
tct cct tct gaa tct tct gtt aat ctc tcc ctt agt ctc aca ttt cct 212
Ser Pro Ser Glu Ser Ser Val Asn Leu Ser Leu Ser Leu Thr Phe Pro
25 30 35
tct act tct cca caa aga gaa gca aga caa gat tgg cca ccg ata aag 260
Ser Thr Ser Pro Gln Arg Glu Ala Arg Gln Asp Trp Pro Ile Lys
40 45 50
tct aga tta aga gat aca cta aag ggt cgt cgt ctt ctt cgt cgt ggt 308
Ser Arg Leu Arg Asp Thr Leu Lys Gly Arg Arg Leu Leu Arg Arg Gly
55 60 65
gat gac act tct ctc ttt gtt aag gtt tat atg gaa ggt gtt ccc att 356
Asp Asp Thr Ser Leu Phe Val Lys Val Tyr Met Glu Gly Val Pro Ile
70 75 80
gga aga aaa ctc gac ctt tgc gta ttc tca ggc tac gag agt cta tta 404
Gly Arg Lys Leu Asp Leu Cys Val Phe Ser Gly Tyr Glu Ser Leu Leu
85 90 95 100
gaa aat ctc tct cac atg ttc gat act tca atc atc tgc ggt aat cga 452
Glu Asn Leu Ser His Met Phe Asp Thr Ser Ile Ile Cys Gly Asn Arg
105 110 115
gat cga aaa cat cat gtt ttg aca tat gaa gac aag gat gga gat tgg 500
Asp Arg Lys His His Val Leu Thr Tyr Glu Asp Lys Asp Gly Asp Trp
120 125 130
atg atg gtc gga gat att cca tgg gat atg ttt ctt gaa acc gtg aga 548

Met Met Val Gly Asp Ile Pro Trp Asp Met Phe Leu Glu Thr Val Arg
135 140 145

aga cta aag atc acg aga ccg gag agg tat taa aacttgatc ggtcaaggct 601
Arg Leu Lys Ile Thr Arg Pro Glu Arg Tyr
150 155

gtgattgcgc agttacgaga cgtgtaagat ttaggcattg atgaagagac ttgaggcggg 661
acggagcctat tgctgcatat tgcaacaaag gccttgaaga agttggagaa ttgattgatg 721
catatattta tttatatgac acctttgagt gtgttttttc ttataaataa atcacaatat 781
ccaagacttc tctttaa 799

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Ser Thr Lys Pro Ser Pro Ser Glu Ser Ser Val Asn Leu Ser Leu Ser
20 25 30

Leu Thr Phe Pro Ser Thr Ser Pro Gln Arg Glu Ala Arg Gln Asp Trp
35 40 45

Pro Pro Ile Lys Ser Arg Leu Arg Asp Thr Leu Lys Gly Arg Arg Leu
50 55 60

Leu Arg Arg Gly Asp Asp Thr Ser Leu Phe Val Lys Val Tyr Met Glu
65 70 75 80

Gly Val Pro Ile Gly Arg Lys Leu Asp Leu Cys Val Phe Ser Gly Tyr
85 90 95

Glu Ser Leu Leu Glu Asn Leu Ser His Met Phe Asp Thr Ser Ile Ile
100 105 110

Cys Gly Asn Arg Asp Arg Lys His His Val Leu Thr Tyr Glu Asp Lys
115 120 125

Asp Gly Asp Trp Met Met Val Gly Asp Ile Pro Trp Asp Met Phe Leu
130 135 140

Glu Thr Val Arg Arg Leu Lys Ile Thr Arg Pro Glu Arg Tyr
145 150 155

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Met
1
gaa cac caa ggt tgg agt ttt gag gag aat tat agt ttg tcc act aat 164
Glu His Gln Gly Trp Ser Phe Glu Glu Asn Tyr Ser Leu Ser Thr Asn
5 10 15
aga aga tct atc agg cca caa gat gaa cta gtg gag tta tta tgg cga 212
Arg Arg Ser Ile Arg Pro Gln Asp Glu Leu Val Glu Leu Trp Arg
20 25 30
gat gga caa gtg gtt ctg cag agc caa act cat aga gaa caa acc caa 260
Asp Gly Gln Val Val Leu Gln Ser Gln Thr His Arg Glu Gln Thr Gln
35 40 45
acc cag aaa caa gat cat cat gaa gaa gcc cta aga tcc agc acc ttt 308
Thr Gln Lys Gln Asp His His Glu Glu Ala Leu Arg Ser Ser Thr Phe
50 55 60 65
ctt gaa gat caa gaa act gtc tct tgg atc caa tac cct cca gat gaa 356
Leu Glu Asp Gln Glu Thr Val Ser Trp Ile Gln Tyr Pro Pro Asp Glu
70 75 80
gac cca ttc gaa ccc gac gac ttc tcc tcc cac ttc ttc tca acc atg 404
Asp Pro Phe Glu Pro Asp Asp Phe Ser Ser His Phe Phe Ser Thr Met
85 90 95
gat ccc ctc cag aga cca acc tca gag acg gtt aag cct aag tcc agt 452
Asp Pro Leu Gln Arg Pro Thr Ser Glu Thr Val Lys Pro Lys Ser Ser
100 105 110
cct gaa cct cct caa gtc atg gtt aag cct aag gcc tgt cct gac cct 500
Pro Glu Pro Pro Gln Val Met Val Lys Pro Lys Ala Cys Pro Asp Pro
115 120 125
cct cct caa gtc atg cct cct cca aaa ttt agg tta aca aat tca tca 548
Pro Pro Gln Val Met Pro Pro Pro Lys Phe Arg Leu Thr Asn Ser Ser
130 135 140 145
tcg ggg att agg gaa aca gaa atg gaa cag tac tcg gta acg acc gtt 596
Ser Gly Ile Arg Glu Thr Glu Met Glu Gln Tyr Ser Val Thr Thr Val
150 155 160
gga cct agc cat tgc gga agc aac cca tca cag aac gat ctc gat gtc 644
Gly Pro Ser His Cys Gly Ser Asn Pro Ser Gln Asn Asp Leu Asp Val
165 170 175
tca atg agt cat gat cga agc aaa aac ata gaa gaa aag ctt aat ccg 692
Ser Met Ser His Asp Arg Ser Lys Asn Ile Glu Glu Lys Leu Asn Pro

180										185										190											
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Asn Ala Ser Ser Ser Ser Gly Gly Ser Ser Gly Cys Ser Phe Gly Lys																															
195	200										205																				
gat atc aaa gaa atg gct agt gga aga tgc tcc gta tct cta tca gat gca																															788
Asp Ile Lys Glu Met Ala Ser Gly Arg Cys Ile Thr Thr Asp Arg Lys																															
210	215										220										225										
aga aaa cgt ata aat cac act gac gaa tct gta tct cta tca gat gca																															836
Arg Lys Arg Ile Asn His Thr Asp Glu Ser Val Ser Leu Ser Asp Ala																															
	230										235										240										
atc ggt aac aag tcg aac caa cga tca gga tca aac cga agg agt cga																															884
Ile Gly Asn Lys Ser Asn Gln Arg Ser Gly Ser Asn Arg Arg Ser Arg																															
	245										250										255										
gca gct gaa gtt cat aat ctc tcc gaa agg agg agg aga gat agg atc																															932
Ala Ala Glu Val His Asn Leu Ser Glu Arg Arg Arg Arg Asp Arg Ile																															
	260										265										270										
aat gag aga atg aag gct ttg caa gaa cta ata cct cac tgc agt aaa																															980
Asn Glu Arg Met Lys Ala Leu Gln Glu Leu Ile Pro His Cys Ser Lys																															
	275										280										285										
act gat aaa gct tcg att tta gac gaa gcc ata gat tat ttg aaa tca																															1028
Thr Asp Lys Ala Ser Ile Leu Asp Glu Ala Ile Asp Tyr Leu Lys Ser																															
	290										295										300										
ctt cag tta cag ctt caa gtg atg tgg atg ggg agt gga atg gcg gcg																															1076
Leu Gln Leu Gln Leu Gln Val Met Trp Met Gly Ser Gly Met Ala Ala																															
	310										315										320										
gcg gcg gct tcg gct ccg atg atg ttc ccc gga gtt caa cct cag cag																															1124
Ala Ala Ala Ser Ala Pro Met Met Phe Pro Gly Val Gln Pro Gln Gln																															
	325										330										335										
ttc ata cgt cag ata cag agc ccg gta cag tta cct cga ttt ccg gtt																															1172
Phe Ile Arg Gln Ile Gln Ser Pro Val Gln Leu Pro Arg Phe Pro Val																															
	340										345										350										
atg gat cag tct gca att cag aac aat ccc ggt tta gtt tgc caa aac																															1220
Met Asp Gln Ser Ala Ile Gln Asn Asn Pro Gly Leu Val Cys Gln Asn																															
	355										360										365										
ccg gta caa aac cag atc atc tcc gac cgg ttt gct aga tac atc ggt																															1268
Pro Val Gln Asn Gln Ile Ile Ser Asp Arg Phe Ala Arg Tyr Ile Gly																															
	370										375										380										
ggg ttc cca cac atg cag gcc gcg act cag atg cag ccg atg gag atg																															1316
Gly Phe Pro His Met Gln Ala Ala Thr Gln Met Gln Pro Met Glu Met																															
	390										395										400										
ttg aga ttt agt tca ccg gcg gga cag caa agt caa caa ccg tcg tct																															1364
Leu Arg Phe Ser Ser Pro Ala Gly Gln Gln Ser Gln Gln Pro Ser Ser																															
	405										410										415										

gtg ccg acg aag acc acc gac ggt tct cgt ttg gac cac tag 1406
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420 425 430

gttggtgagc cactttgc 1424

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1 5 10 15

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20 25 30

Arg Asp Gly Gln Val Val Leu Gln Ser Gln Thr His Arg Glu Gln Thr
35 40 45

Gln Thr Gln Lys Gln Asp His His Glu Glu Ala Leu Arg Ser Ser Thr
50 55 60

Phe Leu Glu Asp Gln Glu Thr Val Ser Trp Ile Gln Tyr Pro Pro Asp
65 70 75 80

Glu Asp Pro Phe Glu Pro Asp Asp Phe Ser Ser His Phe Phe Ser Thr
85 90 95

Met Asp Pro Leu Gln Arg Pro Thr Ser Glu Thr Val Lys Pro Lys Ser
100 105 110

Ser Pro Glu Pro Pro Gln Val Met Val Lys Pro Lys Ala Cys Pro Asp
115 120 125

Pro Pro Pro Gln Val Met Pro Pro Lys Phe Arg Leu Thr Asn Ser
130 135 140

Ser Ser Gly Ile Arg Glu Thr Glu Met Glu Gln Tyr Ser Val Thr Thr
145 150 155 160

Val Gly Pro Ser His Cys Gly Ser Asn Pro Ser Gln Asn Asp Leu Asp
165 170 175

Val Ser Met Ser His Asp Arg Ser Lys Asn Ile Glu Glu Lys Leu Asn
180 185 190

Pro Asn Ala Ser Ser Ser Ser Gly Gly Ser Ser Gly Cys Ser Phe Gly
195 200 205

Lys Asp Ile Lys Glu Met Ala Ser Gly Arg Cys Ile Thr Thr Asp Arg
210 215 220

Lys Arg Lys Arg Ile Asn His Thr Asp Glu Ser Val Ser Leu Ser Asp
225 230 235 240

Ala Ile Gly Asn Lys Ser Asn Gln Arg Ser Gly Ser Asn Arg Arg Ser
245 250 255

Arg Ala Ala Glu Val His Asn Leu Ser Glu Arg Arg Arg Arg Asp Arg
260 265 270

Ile Asn Glu Arg Met Lys Ala Leu Gln Glu Leu Ile Pro His Cys Ser
275 280 285

Lys Thr Asp Lys Ala Ser Ile Leu Asp Glu Ala Ile Asp Tyr Leu Lys
290 295 300

Ser Leu Gln Leu Gln Leu Gln Val Met Trp Met Gly Ser Gly Met Ala
305 310 315 320

Ala Ala Ala Ala Ser Ala Pro Met Met Phe Pro Gly Val Gln Pro Gln
325 330 335

Gln Phe Ile Arg Gln Ile Gln Ser Pro Val Gln Leu Pro Arg Phe Pro
340 345 350

Val Met Asp Gln Ser Ala Ile Gln Asn Asn Pro Gly Leu Val Cys Gln
355 360 365

Asn Pro Val Gln Asn Gln Ile Ile Ser Asp Arg Phe Ala Arg Tyr Ile
370 375 380

Gly Gly Phe Pro His Met Gln Ala Ala Thr Gln Met Gln Pro Met Glu
385 390 395 400

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Met
1
ttg gaa ggt ctt gtc tct caa gaa agc ttg tcc tta aac tct atg gac 166
Leu Glu Gly Leu Val Ser Gln Glu Ser Leu Ser Leu Asn Ser Met Asp
5 10 15
atg tct gta ctt gaa agg ctt aaa tgg gta caa cag caa caa cag caa 214
Met Ser Val Leu Glu Arg Leu Lys Trp Val Gln Gln Gln Gln Gln
20 25 30
ctg caa caa gtt gtg tcc cat agc agt aat aat tca cct gaa ctt ctt 262
Leu Gln Gln Val Val Ser His Ser Ser Asn Asn Ser Pro Glu Leu Leu
35 40 45
cag ata ctt cag ttc cat gga agc aac aat gat gag ttg ttg gag agt 310
Gln Ile Leu Gln Phe His Gly Ser Asn Asn Asp Glu Leu Leu Glu Ser
50 55 60 65
agt ttc agc caa ttt caa atg ctt gga tct ggt ttt gga cca aac tat 358
Ser Phe Ser Gln Phe Gln Met Leu Gly Ser Gly Phe Gly Pro Asn Tyr
70 75 80
aac atg ggt ttt ggt cct cca cat gaa tcc att tca aga aca agt agc 406
Asn Met Gly Phe Gly Pro Pro His Glu Ser Ile Ser Arg Thr Ser Ser
85 90 95
tgc cat atg gaa cct gtg gat aca atg gag gtt ttg ttg aag acc ggt 454
Cys His Met Glu Pro Val Asp Thr Met Glu Val Leu Leu Lys Thr Gly
100 105 110
gaa gaa acc aga gcc gtt gcc ttg aag aac aag aga aaa coa gag gtt 502
Glu Glu Thr Arg Ala Val Ala Leu Lys Asn Lys Arg Lys Pro Glu Val
115 120 125
aag aca agg gaa gag caa aag aca gag aag aag atc aaa gta gag gct 550
Lys Thr Arg Glu Glu Gln Lys Thr Glu Lys Lys Ile Lys Val Glu Ala
130 135 140 145
gag aca gag tca agc atg aaa gga aaa tca aac atg gga aac act gaa 598
Glu Thr Glu Ser Ser Met Lys Gly Lys Ser Asn Met Gly Asn Thr Glu
150 155 160
gca tct tca gac act tca aag gag aca tgc aaa gga gct tca gag aat 646
Ala Ser Ser Asp Thr Ser Lys Glu Thr Ser Lys Gly Ala Ser Glu Asn
165 170 175

cag aaa tta gat tat atc cac gtg aga gct cgt cga ggc caa gcc act	694
Gln Lys Leu Asp Tyr Ile His Val Arg Ala Arg Arg Gly Gln Ala Thr	
180 185 190	
gac aga cac agc tta gca gaa agg gcg aga aga gaa aag atc agc aag	742
Asp Arg His Ser Leu Ala Glu Arg Ala Arg Arg Glu Lys Ile Ser Lys	
195 200 205	
aaa atg aaa tat ctg caa gat att gtg cct gga tgc aat aag gtc aca	790
Lys Met Lys Tyr Leu Gln Asp Ile Val Pro Gly Cys Asn Lys Val Thr	
210 215 220 225	
gga aaa gct ggt atg ctt gat gag atc atc aat tat gtt caa tgt ctc	838
Gly Lys Ala Gly Met Leu Asp Glu Ile Ile Asn Tyr Val Gln Cys Leu	
230 235 240	
caa aga caa gtc gag ttc ctg tcg atg aaa ctt gct gtc ttg aac ccg	886
Gln Arg Gln Val Glu Phe Leu Ser Met Lys Leu Ala Val Leu Asn Pro	
245 250 255	
gaa cta gag ctt gcc gtg gaa gat gta tcc gta aaa cag gct tac ttt	934
Glu Leu Glu Leu Ala Val Glu Asp Val Ser Val Lys Gln Ala Tyr Phe	
260 265 270	
aca aat gta gtt gct tca aag caa tca ata atg gtt gat gtg cca ttg	982
Thr Asn Val Val Ala Ser Lys Gln Ser Ile Met Val Asp Val Pro Leu	
275 280 285	
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Phe Pro Leu Asp Gln Gln Gly Ser Leu Asp Leu Ser Ala Ile Asn Pro	
290 295 300 305	
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Asn Gln Thr Thr Ser Ile Glu Ala Pro Ser Gly Ser Trp Glu Thr Gln	
310 315 320	
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Ser Gln Ser Leu Tyr Asn Thr Ser Ser Leu Gly Phe His Tyr	
325 330 335	
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ctattacatt tgctcatcaa agtagtaatt tcgaaatttg gtaaatgcat tatcctttga	1243
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cca	1306
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Leu Gln Ile Leu Gln Phe His	Gly Ser Asn Asn Asp	Glu Leu Leu Glu
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Ser Ser Phe Ser Gln Phe Gln Met Leu Gly Ser Gly Phe Gly Pro Asn		
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Tyr Asn Met Gly Phe Gly Pro Pro His Glu Ser Ile Ser Arg Thr Ser		
	85	90 95
Ser Cys His Met Glu Pro Val Asp Thr Met Glu Val Leu Leu Lys Thr		
	100	105 110
Gly Glu Glu Thr Arg Ala Val Ala Leu Lys Asn Lys Arg Lys Pro Glu		
	115	120 125
Val Lys Thr Arg Glu Glu Gln Lys Thr Glu Lys Lys Ile Lys Val Glu		
	130	135 140
Ala Glu Thr Glu Ser Ser Met Lys Gly Lys Ser Asn Met Gly Asn Thr		
	145	150 155 160
Glu Ala Ser Ser Asp Thr Ser Lys Glu Thr Ser Lys Gly Ala Ser Glu		
	165	170 175
Asn Gln Lys Leu Asp Tyr Ile His Val Arg Ala Arg Arg Gly Gln Ala		
	180	185 190
Thr Asp Arg His Ser Leu Ala Glu Arg Ala Arg Arg Glu Lys Ile Ser		
	195	200 205
Lys Lys Met Lys Tyr Leu Gln Asp Ile Val Pro Gly Cys Asn Lys Val		
	210	215 220
Thr Gly Lys Ala Gly Met Leu Asp Glu Ile Ile Asn Tyr Val Gln Cys		
	225	230 235 240
Leu Gln Arg Gln Val Glu Phe Leu Ser Met Lys Leu Ala Val Leu Asn		
	245	250 255

Pro Glu Leu Glu Leu Ala Val Glu Asp Val Ser Val Lys Gln Ala Tyr
260 265 270

Phe Thr Asn Val Val Ala Ser Lys Gln Ser Ile Met Val Asp Val Pro
275 280 285

Leu Phe Pro Leu Asp Gln Gln Gly Ser Leu Asp Leu Ser Ala Ile Asn
290 295 300

Pro Asn Gln Thr Thr Ser Ile Glu Ala Pro Ser Gly Ser Trp Glu Thr
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325 330 335

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aagcattaaa atttttacga accaaacaaa caaaaatt atg aat aat tat aat atg 176
Met Asn Asn Tyr Asn Met
1 5

aac cca tct ctc ttc caa aat tac act tgg aac aac atc atc aac agc 224
Asn Pro Ser Leu Phe Gln Asn Tyr Thr Trp Asn Asn Ile Ile Asn Ser
10 15 20

agc aac aac aac aac aag aat gat gat cat cat cat caa cat aat aat 272
Ser Asn Asn Asn Asn Lys Asn Asp Asp His His His Gln His Asn Asn
25 30 35

gat cca atc ggt atg gcc atg gac cag tac aca cag ctc cat atc ttc 320
Asp Pro Ile Gly Met Ala Met Asp Gln Tyr Thr Gln Leu His Ile Phe
40 45 50

aat cct ttc tct tct tct cat ttc cct cct ctc tct tct tcc ctc aca 368
Asn Pro Phe Ser Ser Ser His Phe Pro Pro Leu Ser Ser Ser Leu Thr
55 60 65 70

acc acc act ctt ctc tcc gga gat caa gaa gac gac gaa gac gaa gaa 416
Thr Thr Thr Leu Leu Ser Gly Asp Gln Glu Asp Asp Glu Asp Glu Glu
75 80 85

gaa cct cta gag gaa ctc ggt gct atg aag gaa atg atg tac aag atc 464
Glu Pro Leu Glu Glu Leu Gly Ala Met Lys Glu Met Met Tyr Lys Ile
90 95 100

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Cys Arg Asp Pro Tyr Val His Phe Pro Ser Val Cys Gln Lys Leu Tyr	
65 70 75 80	
ttt ctg tta aag aag atg tac cca ott gct cat aag aag aga gaa gaa	288
Phe Leu Leu Lys Lys Met Tyr Pro Leu Ala His Lys Lys Arg Glu Glu	
85 90 95	
caa gtt tta aag gaa gag caa gaa cga gaa tgt ttt tct cct cag att	336
Gln Val Leu Lys Glu Glu Gln Glu Arg Glu Cys Phe Ser Pro Gln Ile	
100 105 110	
gat ott gtt ttg gat ttg tct gtg tgt agt gga gat tct ctc aat gtc	384
Asp Leu Val Leu Asp Leu Ser Val Cys Ser Gly Asp Ser Leu Asn Val	
115 120 125	
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Ser Asp Lys Gln Lys Val Glu Glu Cys Ser Asn Ala Ala Asn Leu Leu	
130 135 140	
tct agt tca tca agt aga ggt gac att cca tgt atc ccc aaa aat caa	480
Ser Ser Ser Ser Ser Arg Gly Asp Ile Pro Cys Ile Pro Lys Asn Gln	
145 150 155 160	
gaa ccc aca gat gca aaa gct ctt aat gtt cat gaa aat gaa tta ctt	528
Glu Pro Thr Asp Ala Lys Ala Leu Asn Val His Glu Asn Glu Leu Leu	
165 170 175	
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Lys Asp Asn Lys Val Ser Lys Gln Ile Ser Lys Asp Asp Leu Leu Cys	
180 185 190	
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Ser Ala Cys Lys Glu Leu Leu Val Arg Pro Val Val Leu Asn Cys Gly	
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His Val Tyr Cys Glu Gly Cys Val Val Asp Met Ala Glu Glu Ser Glu	
210 215 220	
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Lys Ile Lys Cys Gln Glu Cys Asn Val Cys Asp Pro Arg Gly Phe Pro	
225 230 235 240	
aaa gtt tgt ttg att ctt gaa cag ctt ttg gag gaa aac ttt cct gaa	768
Lys Val Cys Leu Ile Leu Glu Gln Leu Leu Glu Glu Asn Phe Pro Glu	
245 250 255	
gaa tac aat tca aga agc agt aag gtt cag aaa acg ctc gcc cat aat	816
Glu Tyr Asn Ser Arg Ser Ser Lys Val Gln Lys Thr Leu Ala His Asn	
260 265 270	
agc aaa gga aat att caa agc tat ctc aaa gaa ggc ccg tcc tta tca	864
Ser Lys Gly Asn Ile Gln Ser Tyr Leu Lys Glu Gly Pro Ser Leu Ser	
275 280 285	
aac gac aat aac aat gat gat ccc tgg ttg gca aac cct gga tca aat	912

Asn Asp	Asn Asn Asn Asp	Asp	Pro Trp	Leu Ala	Asn	Pro Gly	Ser Asn	
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Val His Phe Gly Ala Gly Cys Asp Ser Cys Gly Val Tyr Pro Ile Ile								
305		310			315		320	
ggg gat cga tac aga tgc aaa gac tgc aag gag gaa att ggg tat gac								1008
Gly Asp Arg Tyr Arg Cys Lys Asp Cys Lys Glu Glu Ile Gly Tyr Asp		325		330			335	
ctt tgc aaa gac tgt tac gag act cct tgc aaa gtt cca ggg aga ttc								1056
Leu Cys Lys Asp Cys Tyr Glu Thr Pro Ser Lys Val Pro Gly Arg Phe		340		345			350	
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Asn Gln Gln His Thr Pro Asp His Arg Leu Glu Leu Ala Arg Ser Pro		355		360			365	
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Gln Val Leu Ile Asn Phe Asn Ser Ile Gly Ile Leu Leu Gly Pro Val		370		375			380	
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Ile Ser Asn Glu Gly Met Asp Thr Asp Glu Gly Glu Glu Gly Pro Pro			390				395	400
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Leu Tyr Lys Pro Ile Val Leu Ser Cys Gly His Leu Ser Cys Phe Trp								
35				40			45	
Cys Val His Lys Ser Met Asn Gly Phe Arg Glu Ser His Cys Pro Ile								
50				55			60	
Cys Arg Asp Pro Tyr Val His Phe Pro Ser Val Cys Gln Lys Leu Tyr								
65		70				75		80
Phe Leu Leu Lys Lys Met Tyr Pro Leu Ala His Lys Lys Arg Glu Glu								
		85				90		95

Gln Val Leu Lys Glu Glu Gln Glu Arg Glu Cys Phe Ser Pro Gln Ile
100 105 110

Asp Leu Val Leu Asp Leu Ser Val Cys Ser Gly Asp Ser Leu Asn Val
115 120 125

Ser Asp Lys Gln Lys Val Glu Glu Cys Ser Asn Ala Ala Asn Leu Leu
130 135 140

Ser Ser Ser Ser Ser Arg Gly Asp Ile Pro Cys Ile Pro Lys Asn Gln
145 150 155 160

Glu Pro Thr Asp Ala Lys Ala Leu Asn Val His Glu Asn Glu Leu Leu
165 170 175

Lys Asp Asn Lys Val Ser Lys Gln Ile Ser Lys Asp Asp Leu Leu Cys
180 185 190

Ser Ala Cys Lys Glu Leu Leu Val Arg Pro Val Val Leu Asn Cys Gly
195 200 205

His Val Tyr Cys Glu Gly Cys Val Val Asp Met Ala Glu Glu Ser Glu
210 215 220

Lys Ile Lys Cys Gln Glu Cys Asn Val Cys Asp Pro Arg Gly Phe Pro
225 230 235 240

Lys Val Cys Leu Ile Leu Glu Gln Leu Leu Glu Glu Asn Phe Pro Glu
245 250 255

Glu Tyr Asn Ser Arg Ser Ser Lys Val Gln Lys Thr Leu Ala His Asn
260 265 270

Ser Lys Gly Asn Ile Gln Ser Tyr Leu Lys Glu Gly Pro Ser Leu Ser
275 280 285

Asn Asp Asn Asn Asn Asp Asp Pro Trp Leu Ala Asn Pro Gly Ser Asn
290 295 300

Val His Phe Gly Ala Gly Cys Asp Ser Cys Gly Val Tyr Pro Ile Ile
305 310 315 320

Gly Asp Arg Tyr Arg Cys Lys Asp Cys Lys Glu Glu Ile Gly Tyr Asp
 325 330 335

Leu Cys Lys Asp Cys Tyr Glu Thr Pro Ser Lys Val Pro Gly Arg Phe
 340 345 350

Asn Gln Gln His Thr Pro Asp His Arg Leu Glu Leu Ala Arg Ser Pro
 355 360 365

Gln Val Leu Ile Asn Phe Asn Ser Ile Gly Ile Leu Leu Gly Pro Val
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 Ser Gly Phe His Gly Gly Ile Arg Arg Phe Pro Leu Ala Ala Gln Pro
 20 25 30

gag att atg aga gct gct gag aaa gac gat caa tac gct tct ttc atc 144
 Glu Ile Met Arg Ala Ala Glu Lys Asp Asp Gln Tyr Ala Ser Phe Ile
 35 40 45

cac gaa gct tgc cgc gat gcc ttc cga cac ctt ttc ggt aca aga atc 192
 His Glu Ala Cys Arg Asp Ala Phe Arg His Leu Phe Gly Thr Arg Ile
 50 55 60

gct ctt gct tac cag aag gag atg aag cta ctt gga cag atg ctt tac 240
 Ala Leu Ala Tyr Gln Lys Glu Met Lys Leu Leu Gly Gln Met Leu Tyr
 65 70 75 80

tat gtt ctt acg aca ggt tca ggg caa caa act tta gga gag gaa tat 288
 Tyr Val Leu Thr Thr Gly Ser Gly Gln Gln Thr Leu Gly Glu Glu Tyr
 85 90 95

tgt gac att ata cag gtt gca ggg cct tat gga ctc tct cct aca cca 336
 Cys Asp Ile Ile Gln Val Ala Gly Pro Tyr Gly Leu Ser Pro Thr Pro
 100 105 110

gct aga cgt gct ttg ttc ata ttg tac cag acc gca gtt cca tat atc 384

Ala	Arg	Arg	Ala	Leu	Phe	Ile	Leu	Tyr	Gln	Thr	Ala	Val	Pro	Tyr	Ile																	
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Ala	Glu	Arg	Ile	Ser	Thr	Arg	Ala	Ala	Thr	Gln	Ala	Val	Thr	Phe	Asp																	
130																135	140															
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Ala	Ser	Asp	Glu	Phe	Phe	Gly	Asp	Ser	His	Ile	His	Ser	Pro	Arg	Met																	
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Ile	Asp	Leu	Pro	Ser	Ser	Ser	Gln	Val	Glu	Thr	Ser	Thr	Ser	Val	Val																	
165																170	175															
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Ser	Arg	Leu	Asn	Asp	Arg	Leu	Met	Arg	Ser	Trp	His	Arg	Ala	Ile	Gln																	
180																185	190															
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Arg	Trp	Pro	Val	Val	Leu	Pro	Val	Ala	Arg	Glu	Val	Leu	Gln	Leu	Val																	
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225																230	235															
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Leu	Asn	Gln	Arg	Pro	Arg	Tyr	Gln	Ile	Leu	Gly	Val	Phe	Leu	Leu	Ile																	
245																250	255															
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260																265	270															
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Ser	Ile	Thr	Ser	Ser	Ile	Gln	Gln	Ala	Ser	Ile	Gly	Ser	Tyr	Gln	Thr																	
275																280	285															
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Ser	Gly	Gly	Arg	Gly	Leu	Pro	Val	Leu	Asn	Glu	Glu	Gly	Asn	Leu	Ile																	
290																295	300															
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325																330	335															
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 355 360 365

 acc cat tca agt ttg gtt tgt ttg tat cat tct gat ttt tag 1146
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 35 40 45

 His Glu Ala Cys Arg Asp Ala Phe Arg His Leu Phe Gly Thr Arg Ile
 50 55 60

 Ala Leu Ala Tyr Gln Lys Glu Met Lys Leu Leu Gly Gln Met Leu Tyr
 65 70 75 80

 Tyr Val Leu Thr Thr Gly Ser Gly Gln Gln Thr Leu Gly Glu Gly Tyr
 85 90 95

 Cys Asp Ile Ile Gln Val Ala Gly Pro Tyr Gly Leu Ser Pro Thr Pro
 100 105 110

 Ala Arg Arg Ala Leu Phe Ile Leu Tyr Gln Thr Ala Val Pro Tyr Ile
 115 120 125

 Ala Glu Arg Ile Ser Thr Arg Ala Ala Thr Gln Ala Val Thr Phe Asp
 130 135 140

 Glu Ser Asp Glu Phe Phe Gly Asp Ser His Ile His Ser Pro Arg Met
 145 150 155 160

 Ile Asp Leu Pro Ser Ser Ser Gln Val Glu Thr Ser Thr Ser Val Val
 165 170 175

Ser Arg Leu Asn Asp Arg Leu Met Arg Ser Trp His Arg Ala Ile Gln
180 185 190

Arg Trp Pro Val Val Leu Pro Val Ala Arg Glu Val Leu Gln Leu Val
195 200 205

Leu Arg Ala Asn Leu Met Leu Phe Tyr Phe Glu Gly Phe Tyr Tyr His
210 215 220

Ile Ser Lys Arg Ala Ser Gly Val Arg Tyr Val Phe Ile Gly Lys Gln
225 230 235 240

Leu Asn Gln Arg Pro Arg Tyr Gln Ile Leu Gly Val Phe Leu Leu Ile
245 250 255

Gln Leu Cys Ile Leu Ala Ala Glu Gly Leu Arg Arg Ser Asn Leu Ser
260 265 270

Ser Ile Thr Ser Ser Ile Gln Gln Ala Ser Ile Gly Ser Tyr Gln Thr
275 280 285

Ser Gly Gly Arg Gly Leu Pro Val Leu Asn Glu Glu Gly Asn Leu Ile
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325 330 335

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Ala	Leu	Gln	Gly	Lys	Ser	Cys	Pro	Ile	Cys	Leu	Glu	Asn	Leu	Thr	Glu	
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Arg	Arg	Ser	Ala	Ala	Val	Ile	Thr	Val	Cys	Lys	His	Gly	Tyr	Cys	Leu	
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Asn	Thr	Arg	Phe	Asp	Ser	Trp	Phe	Ile	Val	Ser	Asp	Phe	Ala	Ser	Arg	
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Lys	Tyr	His	Lys	Glu	Gln	Leu	Pro	Ile	Leu	Arg	Asp	Arg	Glu	Thr	Leu	
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Thr	Tyr	His	Arg	Asn	Asn	Pro	Ser	Asp	Arg	Arg	Arg	Ile	Ile	Gln	Arg	
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Trp	Arg	Arg	Ser	Phe	Gly	Arg	Pro	Gly	Ser	Val	Pro	Asp	Ser	Val	Ile	
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Arg	Ala	Val	Arg	Leu	His	Ser	Arg	Arg	Leu	Glu	Leu	Ser	Leu	Ala	Val	
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Ser Leu Arg Lys Phe Leu Ser Asp Lys Val Asp Ile Phe Trp His Glu				
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cta aga tgt ttt ttc gcg gag agt ata ctc acg atg gag act tat gat gca				864
Leu Arg Cys Phe Ala Glu Ser Ile Leu Thr Met Glu Thr Tyr Asp Ala				
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Thr Tyr His Arg Asn Asn Pro Ser Asp Arg Arg Arg Ile Ile Gln Arg	
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Ser Arg Asp Val Leu Glu Asn Ser Ser Ser Arg Ser Arg Pro Leu Pro	
130 135 140	

Trp Arg Arg Ser Phe Gly Arg Pro Gly Ser Val Pro Asp Ser Val Ile
145 150 155 160

Phe Gln Arg Lys Leu Gln Trp Arg Ala Ser Ile Tyr Thr Lys Gln Leu
165 170 175

Arg Ala Val Arg Leu His Ser Arg Arg Leu Glu Leu Ser Leu Ala Val
180 185 190

Asn Asp Tyr Thr Lys Ala Lys Ile Thr Glu Arg Ile Glu Pro Trp Ile
195 200 205

Arg Arg Glu Leu Gln Ala Val Leu Gly Asp Pro Asp Pro Ser Val Ile
210 215 220

Val His Phe Ala Ser Ala Leu Phe Ile Lys Arg Leu Glu Arg Glu Asn
225 230 235 240

Asn Arg Gln Thr Gly Gln Thr Gly Met Leu Val Glu Asp Glu Val Ser
245 250 255

Ser Leu Arg Lys Phe Leu Ser Asp Lys Val Asp Ile Phe Trp His Glu
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Val Gly Ser Asp Tyr Ser Asp Met Asp Ile Ile Arg Ala Leu His Met
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Ala Asn His Asp Pro Thr Ala Ala Ile Asn Ile Ile Phe Asp Thr Pro
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Ser Phe Ala Lys Pro Asp Val Ala Thr Pro Thr Pro Ser Gly Ser Asn	
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Ser Gly Ser Val Gly Ala Asn His Arg Val Glu Glu Glu Asn Glu Ser	
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Val Asn Gly Gly Glu Glu Ser Val Ser Gly Asn Glu Trp Trp Phe	
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Pro Leu Val Arg Asp Lys Lys Ile Arg Ile Glu Gly Ser Cys Lys Ser	
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Asn Leu Phe Arg Leu Leu Gly Leu Ile Pro Phe Lys Lys Ala Glu Phe	
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Thr Pro Glu Asp Phe Tyr Ser Lys Lys Arg Pro Leu Ser Ser Lys Asp	

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180 185 190

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260 265 270

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Gly Asp Leu Asp Asn Ile Val Gly Val Gly Asp Ser Ser Gly Leu Lys
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355 360 365

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Gly Ile Tyr Ala Val Arg Trp Phe Arg Ile Val Leu Asp Glu Ala His
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Val Ala Asp Arg Arg Trp Cys Leu Thr Gly Thr Pro Ile Gln Asn Asn

595	600	605
Leu Glu Asp Leu Tyr Ser Leu Leu Arg Phe Leu Arg Ile Glu Pro Trp 610 615 620		
Gly Thr Trp Ala Trp Trp Asn Lys Leu Val Gln Lys Pro Phe Glu Glu 625 630 635 640		
Gly Asp Glu Arg Gly Leu Lys Leu Val Gln Ser Ile Leu Lys Pro Ile 645 650 655		
Met Leu Arg Arg Thr Lys Ser Ser Thr Asp Arg Glu Gly Arg Pro Ile 660 665 670		
Leu Val Leu Pro Pro Ala Asp Ala Arg Val Ile Tyr Cys Glu Leu Ser 675 680 685		
Glu Ser Glu Arg Asp Phe Tyr Asp Ala Leu Phe Lys Arg Ser Lys Val 690 695 700		
Lys Phe Asp Gln Phe Val Glu Gln Gly Lys Val Leu His Asn Tyr Ala 705 710 715 720		
Ser Ile Leu Glu Leu Leu Arg Leu Arg Gln Cys Cys Asp His Pro 725 730 735		
Phe Leu Val Met Ser Arg Gly Asp Thr Ala Glu Tyr Ser Asp Leu Asn 740 745 750		
Lys Leu Ser Lys Arg Phe Leu Ser Gly Lys Ser Ser Gly Leu Glu Arg 755 760 765		
Glu Gly Lys Asp Val Pro Ser Glu Ala Phe Val Gln Glu Val Val Glu 770 775 780		
Glu Leu Arg Lys Gly Glu Gln Gly Glu Cys Pro Ile Cys Leu Glu Ala 785 790 795 800		
Leu Glu Asp Ala Val Leu Thr Pro Cys Ala His Arg Leu Cys Arg Glu 805 810 815		
Cys Leu Leu Ala Ser Trp Arg Asn Ser Thr Ser Gly Leu Cys Pro Val 820 825 830		

Cys Arg Asn Thr Val Ser Lys Gln Glu Leu Ile Thr Ala Pro Thr Glu
835 840 845

Ser Arg Phe Gln Val Asp Val Glu Lys Asn Trp Val Glu Ser Ser Lys
850 855 860

Ile Thr Ala Leu Leu Glu Glu Leu Glu Gly Leu Arg Ser Ser Gly Ser
865 870 875 880

Lys Ser Ile Leu Phe Ser Gln Trp Thr Ala Phe Leu Asp Leu Leu Gln
885 890 895

Ile Pro Leu Ser Arg Asn Asn Phe Ser Phe Val Arg Leu Asp Gly Thr
900 905 910

Leu Ser Gln Gln Gln Arg Glu Lys Val Leu Lys Glu Phe Ser Glu Asp
915 920 925

Gly Ser Ile Leu Val Leu Leu Met Ser Leu Lys Ala Gly Gly Val Gly
930 935 940

Ile Asn Leu Thr Ala Ala Ser Asn Ala Phe Val Met Asp Pro Trp Trp
945 950 955 960

Asn Pro Ala Val Glu Glu Gln Ala Val Met Arg Ile His Arg Ile Gly
965 970 975

Gln Thr Lys Glu Val Lys Ile Arg Arg Phe Ile Val Lys Gly Thr Val
980 985 990

Glu Glu Arg Met Glu Ala Val Gln Ala Arg Lys Gln Arg Met Ile Ser
995 1000 1005

Gly Ala Leu Thr Asp Gln Glu Val Arg Ser Ala Arg Ile Glu Glu
1010 1015 1020

Leu Lys Met Leu Phe Thr
1025

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<222> (1)..(783) <223> G1537

[illegible]

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Ser Pro Val Asp Cys Ser Ser Asp Gly Ala Gly Arg Glu Gln Pro Phe	
225 230 235 240	
att gat ttc ttt tct ggt ggt tot act tct act cgt ttc gat agt aat	768
Ile Asp Phe Phe Ser Gly Gly Ser Thr Ser Thr Arg Phe Asp Ser Asn	
245 250 255	
ggt aat ggg ttg taa	783
Gly Asn Gly Leu	
260	
<210> 238 <211> 260 <212> PRT <213> Arabidopsis thaliana <400> 238	
Met Glu Asn Glu Val Asn Ala Gly Thr Ala Ser Ser Ser Arg Trp Asn	
1 5 10 15	
Pro Thr Lys Asp Gln Ile Thr Leu Leu Glu Asn Leu Tyr Lys Glu Gly	
20 25 30	
Ile Arg Thr Pro Ser Ala Asp Gln Ile Gln Gln Ile Thr Gly Arg Leu	
35 40 45	
Arg Ala Tyr Gly His Ile Glu Gly Lys Asn Val Phe Tyr Trp Phe Gln	
50 55 60	
Asn His Lys Ala Arg Gln Arg Gln Lys Gln Lys Gln Glu Arg Met Ala	
65 70 75 80	
Tyr Phe Asn Arg Leu Leu His Lys Thr Ser Arg Phe Phe Tyr Pro Pro	
85 90 95	
Pro Cys Ser Asn Val Gly Cys Val Ser Pro Tyr Tyr Leu Gln Gln Ala	
100 105 110	
Ser Asp His His Met Asn Gln His Gly Ser Val Tyr Thr Asn Asp Leu	
115 120 125	
Leu His Arg Asn Asn Val Met Ile Pro Ser Gly Gly Tyr Glu Lys Arg	
130 135 140	
Thr Val Thr Gln His Gln Lys Gln Leu Ser Asp Ile Arg Thr Thr Ala	
145 150 155 160	
Ala Thr Arg Met Pro Ile Ser Pro Ser Ser Leu Arg Phe Asp Arg Phe	
165 170 175	

Ala Leu Arg Asp Asn Cys Tyr Ala Gly Glu Asp Ile Asn Val Asn Ser
180 185 190

Ser Gly Arg Lys Thr Leu Pro Leu Phe Pro Leu Gln Pro Leu Asn Ala
195 200 205

Ser Asn Ala Asp Gly Met Gly Ser Ser Ser Phe Ala Leu Gly Ser Asp
210 215 220

Ser Pro Val Asp Cys Ser Ser Asp Gly Ala Gly Arg Glu Gln Pro Phe
225 230 235 240

Ile Asp Phe Phe Ser Gly Gly Ser Thr Ser Thr Arg Phe Asp Ser Asn
245 250 255

Gly Asn Gly Leu
260

<210> 239 <211> 828 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(828) <223> G1543

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Met Ile Lys Leu Leu Phe Thr Tyr Ile Cys Thr Tyr Thr Tyr Lys Leu
1 5 10 15

tat gct cta tat cat atg gat tac gca tgc gtg tgt atg tat aaa tat 96
Tyr Ala Leu Tyr His Met Asp Tyr Ala Cys Val Cys Met Tyr Lys Tyr
20 25 30

aaa ggc atc gtc acg ctt caa gtt tgt ctc ttt tat att aaa ctg aga 144
Lys Gly Ile Val Thr Leu Gln Val Cys Leu Phe Tyr Ile Lys Leu Arg
35 40 45

ggt ttc ctc tca aac ttt acc ttt tct tct tgc atc cta gct ctt aag 192
Val Phe Leu Ser Asn Phe Thr Phe Ser Ser Ser Ile Leu Ala Leu Lys
50 55 60

aac cct aat aat tca ttg atc aaa ata atg gcg att ttg cgg gaa aac 240
Asn Pro Asn Asn Ser Leu Ile Lys Ile Met Ala Ile Leu Pro Glu Asn
65 70 75 80

tct tca aac ttg gat ctt act atc tcc gtt cca ggc ttc tct tca tcc 288
Ser Ser Asn Leu Asp Leu Thr Ile Ser Val Pro Gly Phe Ser Ser Ser
85 90 95

cct ctc tcc gat gaa gga agt ggc gga gga aga gac cag cta agg cta 336
Pro Leu Ser Asp Glu Gly Ser Gly Gly Gly Arg Asp Gln Leu Arg Leu
100 105 110

gac atg aat cgg tta ccg tcg tct gaa gac gga gac gat gaa gaa ttc 384
 Asp Met Asn Arg Leu Pro Ser Ser Glu Asp Gly Asp Asp Glu Glu Phe
 115 120 125

agt cac gat gat ggc tct gct cct ccg cga aag aaa ctc cgt cta acc 432
 Ser His Asp Asp Gly Ser Ala Pro Pro Arg Lys Lys Leu Arg Leu Thr
 130 135 140

aga gaa cag tca cgt ctt ctt gaa gat agt ttc aga cag aat cat acc 480
 Arg Glu Gln Ser Arg Leu Leu Glu Asp Ser Phe Arg Gln Asn His Thr
 145 150 155 160

ctt aat ccc aaa caa aag gaa gta ctt gcc aag cat ttg atg cta cgg 528
 Leu Asn Pro Lys Gln Lys Glu Val Leu Ala Lys His Leu Met Leu Arg
 165 170 175

cca aga caa att gaa gtt tgg ttt caa aac cgt aga gca agg agc aaa 576
 Pro Arg Gln Ile Glu Val Trp Phe Gln Asn Arg Arg Ala Arg Ser Lys
 180 185 190

ttg aag caa acc gag atg gaa tgc gag tat ctc aaa agg tgg ttt ggt 624
 Leu Lys Gln Thr Glu Met Glu Cys Glu Tyr Leu Lys Arg Trp Phe Gly
 195 200 205

tca tta acg gaa gaa aac cac agg ctc cat aga gaa gta gaa gag ctt 672
 Ser Leu Thr Glu Glu Asn His Arg Leu His Arg Glu Val Glu Glu Leu
 210 215 220

aga gcc ata aag gtt ggc cca aca acg gtg aac tct gcc tcg agc ctt 720
 Arg Ala Ile Lys Val Gly Pro Thr Thr Val Asn Ser Ala Ser Ser Leu
 225 230 235 240

act atg tgt cct cgc tgc gag cga gtt acc cct gcc gcg agc cct tcg 768
 Thr Met Cys Pro Arg Cys Glu Arg Val Thr Pro Ala Ala Ser Pro Ser
 245 250 255

agg gcg gtg gtg ccg gtt ccg gct aag aaa acg ttt ccg ccg caa gag 816
 Arg Ala Val Val Pro Val Pro Ala Lys Lys Thr Phe Pro Pro Gln Glu
 260 265 270

cgt gat cgt tga 828
 Arg Asp Arg
 275

<210> 240 <211> 275 <212> PRT <213> Arabidopsis thaliana <400> 240

Met Ile Lys Leu Leu Phe Thr Tyr Ile Cys Thr Tyr Thr Tyr Lys Leu
 1 5 10 15

Tyr Ala Leu Tyr His Met Asp Tyr Ala Cys Val Cys Met Tyr Lys Tyr
 20 25 30

Lys Gly Ile Val Thr Leu Gln Val Cys Leu Phe Tyr Ile Lys Leu Arg

35	40	45
Val Phe Leu Ser Asn Phe Thr Phe Ser Ser Ser Ile Leu Ala Leu Lys 50 55 60		
Asn Pro Asn Asn Ser Leu Ile Lys Ile Met Ala Ile Leu Pro Glu Asn 65 70 75 80		
Ser Ser Asn Leu Asp Leu Thr Ile Ser Val Pro Gly Phe Ser Ser Ser 85 90 95		
Pro Leu Ser Asp Glu Gly Ser Gly Gly Gly Arg Asp Gln Leu Arg Leu 100 105 110		
Asp Met Asn Arg Leu Pro Ser Ser Glu Asp Gly Asp Asp Glu Glu Phe 115 120 125		
Ser His Asp Asp Gly Ser Ala Pro Pro Arg Lys Lys Leu Arg Leu Thr 130 135 140		
Arg Glu Gln Ser Arg Leu Leu Glu Asp Ser Phe Arg Gln Asn His Thr 145 150 155 160		
Leu Asn Pro Lys Gln Lys Glu Val Leu Ala Lys His Leu Met Leu Arg 165 170 175		
Pro Arg Gln Ile Glu Val Trp Phe Gln Asn Arg Arg Ala Arg Ser Lys 180 185 190		
Leu Lys Gln Thr Glu Met Glu Cys Glu Tyr Leu Lys Arg Trp Phe Gly 195 200 205		
Ser Leu Thr Glu Glu Asn His Arg Leu His Arg Glu Val Glu Glu Leu 210 215 220		
Arg Ala Ile Lys Val Gly Pro Thr Thr Val Asn Ser Ala Ser Ser Leu 225 230 235 240		
Thr Met Cys Pro Arg Cys Glu Arg Val Thr Pro Ala Ala Ser Pro Ser 245 250 255		
Arg Ala Val Val Pro Val Pro Ala Lys Lys Thr Phe Pro Pro Gln Glu 260 265 270		

Arg Asp Arg
275

<210> 241 <211> 1962 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(1962) <223> G1574

<400> 241
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Met Asp Asp Thr Met Asp Met Ser Ser Gly Ser Asp Glu Glu Val Gln
1 5 10 15

gaa gag aag acc act gtt aac gag agg gtc atc tat cag gct gca tta 96
Glu Glu Lys Thr Thr Val Asn Glu Arg Val Ile Tyr Gln Ala Ala Leu
20 25 30

caa gat ctg aag caa ccc aag acc gaa aag gat cta cct cct ggt gtt 144
Gln Asp Leu Lys Gln Pro Lys Thr Glu Lys Asp Leu Pro Pro Gly Val
35 40 45

ctt aca gtt cct ctt atg agg cat cag aaa att gca ttg aac tgg atg 192
Leu Thr Val Pro Leu Met Arg His Gln Lys Ile Ala Leu Asn Trp Met
50 55 60

cgt aag aaa gaa aaa aga agc agg cac tgt ttg gga ggg ata tta gca 240
Arg Lys Lys Glu Lys Arg Ser Arg His Cys Leu Gly Gly Ile Leu Ala
65 70 75 80

gat gat cag gga ctt ggt aaa acg atc tgc acg atc tct ctt atc ctg 288
Asp Asp Gln Gly Leu Gly Lys Thr Ile Ser Thr Ile Ser Leu Ile Leu
85 90 95

tta caa aag ttg aag tca caa tca aag cag aga aag cga aaa ggt caa 336
Leu Gln Lys Leu Lys Ser Gln Ser Lys Gln Arg Lys Arg Lys Gly Gln
100 105 110

aac tct ggt ggt aca ttg att gtt tgt cca gca agt gtt gta aaa caa 384
Asn Ser Gly Gly Thr Leu Ile Val Cys Pro Ala Ser Val Val Lys Gln
115 120 125

tgg gca aga gaa gtt aaa gag aag gtt tct gat gaa cac aaa ctc tct 432
Trp Ala Arg Glu Val Lys Glu Lys Val Ser Asp Glu His Lys Leu Ser
130 135 140

gtt tta gtc cac cat gga tct cac aga acc aaa gat cca aca gaa ata 480
Val Leu Val His His Gly Ser His Arg Thr Lys Asp Pro Thr Glu Ile
145 150 155 160

gca ata tat gat gtg gtc atg aca act tac gcc att gtt aca aat gaa 528
Ala Ile Tyr Asp Val Val Met Thr Thr Tyr Ala Ile Val Thr Asn Glu
165 170 175

gtt cca caa aac cct atg ctg aat cgt tat gat agt atg aga ggc aga 576
Val Pro Gln Asn Pro Met Leu Asn Arg Tyr Asp Ser Met Arg Gly Arg
180 185 190

gaa agc ctt gac gga tcg agt ttg att cag cct cac gtt ggt gca cta Glu Ser Leu Asp Gly Ser Ser Leu Ile Gln Pro His Val Gly Ala Leu 195 200 205	624
gga aga gtt agg tgg ttg aga gta gta tta gat gaa gct cat aca att Gly Arg Val Arg Trp Leu Arg Val Val Leu Asp Gln Ala His Thr Ile 210 215 220	672
aaa aac cat aga acc cta att gca aaa gct tgt ttt agc ctt aga gcc Lys Asn His Arg Thr Leu Ile Ala Lys Ala Cys Phe Ser Leu Arg Ala 225 230 235 240	720
aaa agg aga tgg tgt ttg act gga acg ccg ata aag aac aaa gta gac Lys Arg Arg Trp Cys Leu Thr Gly Thr Pro Ile Lys Asn Lys Val Asp 245 250 255	768
gat ctt tat agc tat ttc aga ttt ctt aga tat cat cca tat gcc atg Asp Leu Tyr Ser Tyr Phe Arg Phe Leu Arg Tyr His Pro Tyr Ala Met 260 265 270	816
tgc aat tca ttt cac caa aga atc aaa gct cca att gat aaa aag cct Cys Asn Ser Phe His Gln Arg Ile Lys Ala Pro Ile Asp Lys Lys Pro 275 280 285	864
ctt cat ggt tac aag aag ctt caa gct att cta agg ggt ata atg ttg Leu His Gly Tyr Lys Lys Leu Gln Ala Ile Leu Arg Gly Ile Met Leu 290 295 300	912
cgc cgc acc aaa gaa tgg tct ttc tac agg aag ctt gaa ttg aat tca Arg Arg Thr Lys Glu Trp Ser Phe Tyr Arg Lys Leu Glu Leu Asn Ser 305 310 315 320	960
cgt tgg aag ttt gag gaa tat gct gct gat ggg act ttg cat gaa cac Arg Trp Lys Phe Glu Glu Tyr Ala Ala Asp Gly Thr Leu His Glu His 325 330 335	1008
atg gct tat ctt ttg gtg atg ctt ttg cga cta cgc caa gct tgt aac Met Ala Tyr Leu Leu Val Met Leu Leu Arg Leu Arg Gln Ala Cys Asn 340 345 350	1056
cat cca caa ctt gtt aac gga tat agt cac tca gat act aca aga aaa His Pro Gln Leu Val Asn Gly Tyr Ser His Ser Asp Thr Thr Arg Lys 355 360 365	1104
atg tca gat gga gtt cga gta gcc cct aga gag aat cta atc atg ttc Met Ser Asp Gly Val Arg Val Ala Pro Arg Glu Asn Leu Ile Met Phe 370 375 380	1152
ctc gat ctc ttg aaa tta tcc acc acc tgc tct gtt tgt agt gat Leu Asp Leu Leu Lys Leu Ser Ser Thr Thr Cys Ser Val Cys Ser Asp 385 390 395 400	1200
cca cca aaa gac cct gtt gtt act ttg tgt ggc cat gtg ttt tgt tat Pro Pro Lys Asp Pro Val Val Thr Leu Cys Gly His Val Phe Cys Tyr 405 410 415	1248

gag tgt gtg tct gta aac att aac ggg gat aac aat acg tgc cct gca Glu Cys Val Ser Val Asn Ile Asn Gly Asp Asn Asn Thr Cys Pro Ala 420 425 430	1296
ctt aat tgc cac agc cag ctt aaa cat gat gtt gtt ttc act gaa tct Leu Asn Cys His Ser Gln Leu Lys His Asp Val Val Phe Thr Glu Ser 435 440 445	1344
gca gtt aga agt tgc atc aac gat tat gat gat cct gaa gat aaa aat Ala Val Arg Ser Cys Ile Asn Asp Tyr Asp Asp Pro Glu Asp Lys Asn 450 455 460	1392
gct tta gtt gca tca agg cga gtt tat ttc atc gaa aat ccg agc tgt Ala Leu Val Ala Ser Arg Arg Val Tyr Phe Ile Glu Asn Pro Ser Cys 465 470 475 480	1440
gat aga gat tct tca gtc gct tgc aga gca agg cag tcc aga cac tcc Asp Arg Asp Ser Ser Val Ala Cys Arg Ala Arg Gln Ser Arg His Ser 485 490 495	1488
acc aat aaa gac aat agt atc agt gga ctg aat ctc att ttt acg ttt Thr Asn Lys Asp Asn Ser Ile Ser Gly Leu Asn Leu Ile Phe Thr Phe 500 505 510	1536
ctc aaa gac aaa tgt aat gat tat gaa aca ggt gcg atg ttg atg tct Leu Lys Asp Lys Cys Asn Asp Tyr Glu Thr Gly Ala Met Leu Met Ser 515 520 525	1584
ctt aaa gct gga aac ctt gga ttg aat atg gta gct gca agt cat gtc Leu Lys Ala Gly Asn Leu Gly Leu Asn Met Val Ala Ala Ser His Val 530 535 540	1632
att cta ctg gac cta tgg tgg aat cca aca aca gag gat caa gct att Ile Leu Leu Asp Leu Trp Trp Asn Pro Thr Thr Glu Asp Gln Ala Ile 545 550 555 560	1680
gat cga gct cat cgt atc gga caa act cga gct gtt acg gtc act cgt Asp Arg Ala His Arg Ile Gly Gln Thr Arg Ala Val Thr Val Thr Arg 565 570 575	1728
att gcc atc aaa aat acc gtt gag gaa cga att ttg act ctt cat gaa Ile Ala Ile Lys Asn Thr Val Glu Glu Arg Ile Leu Thr Leu His Glu 580 585 590	1776
cgt aaa agg aac att gtt gca tct gca ttg ggt gaa aaa aac tgg caa Arg Lys Arg Asn Ile Val Ala Ser Ala Leu Gly Glu Lys Asn Trp Gln 595 600 605	1824
aag ttc tgc gat tca act aac act aga aga tct cga ata tct gtt ttt Lys Phe Cys Asp Ser Thr Asn Thr Arg Arg Ser Arg Ile Ser Val Phe 610 615 620	1872
tgg tgt gta gaa tat ccc aga gtt ttt att gat aag agg aat aaa acc Trp Cys Val Glu Tyr Pro Arg Val Phe Ile Asp Lys Arg Asn Lys Thr 625 630 635 640	1920
ttt agc tat tta ata agt cac aag tgt gaa tgt aat gaa taa	1962

Phe Ser Tyr Leu Ile Ser His Lys Cys Glu Cys Asn Glu
645 650

<210> 242 <211> 653 <212> PRT <213> Arabidopsis thaliana <400> 242

Met Asp Asp Thr Met Asp Met Ser Ser Gly Ser Asp Glu Glu Val Gln
1 5 10 15

Glu Glu Lys Thr Thr Val Asn Glu Arg Val Ile Tyr Gln Ala Ala Leu
20 25 30

Gln Asp Leu Lys Gln Pro Lys Thr Glu Lys Asp Leu Pro Pro Gly Val
35 40 45

Leu Thr Val Pro Leu Met Arg His Gln Lys Ile Ala Leu Asn Trp Met
50 55 60

Arg Lys Lys Glu Lys Arg Ser Arg His Cys Leu Gly Gly Ile Leu Ala
65 70 75 80

Asp Asp Gln Gly Leu Gly Lys Thr Ile Ser Thr Ile Ser Leu Ile Leu
85 90 95

Leu Gln Lys Leu Lys Ser Gln Ser Lys Gln Arg Lys Arg Lys Gly Gln
100 105 110

Asn Ser Gly Gly Thr Leu Ile Val Cys Pro Ala Ser Val Val Lys Gln
115 120 125

Trp Ala Arg Glu Val Lys Glu Lys Val Ser Asp Glu His Lys Leu Ser
130 135 140

Val Leu Val His His Gly Ser His Arg Thr Lys Asp Pro Thr Glu Ile
145 150 155 160

Ala Ile Tyr Asp Val Val Met Thr Thr Tyr Ala Ile Val Thr Asn Glu
165 170 175

Val Pro Gln Asn Pro Met Leu Asn Arg Tyr Asp Ser Met Arg Gly Arg
180 185 190

Glu Ser Leu Asp Gly Ser Ser Leu Ile Gln Pro His Val Gly Ala Leu
195 200 205

Gly Arg Val Arg Trp Leu Arg Val Val Leu Asp Glu Ala His Thr Ile
210 215 220

Lys Asn His Arg Thr Leu Ile Ala Lys Ala Cys Phe Ser Leu Arg Ala
225 230 235 240

Lys Arg Arg Trp Cys Leu Thr Gly Thr Pro Ile Lys Asn Lys Val Asp
245 250 255

Asp Leu Tyr Ser Tyr Phe Arg Phe Leu Arg Tyr His Pro Tyr Ala Met
260 265 270

Cys Asn Ser Phe His Gln Arg Ile Lys Ala Pro Ile Asp Lys Lys Pro
275 280 285

Leu His Gly Tyr Lys Lys Leu Gln Ala Ile Leu Arg Gly Ile Met Leu
290 295 300

Arg Arg Thr Lys Glu Trp Ser Phe Tyr Arg Lys Leu Glu Leu Asn Ser
305 310 315 320

Arg Trp Lys Phe Glu Glu Tyr Ala Ala Asp Gly Thr Leu His Glu His
325 330 335

Met Ala Tyr Leu Leu Val Met Leu Leu Arg Leu Arg Gln Ala Cys Asn
340 345 350

His Pro Gln Leu Val Asn Gly Tyr Ser His Ser Asp Thr Thr Arg Lys
355 360 365

Met Ser Asp Gly Val Arg Val Ala Pro Arg Glu Asn Leu Ile Met Phe
370 375 380

Leu Asp Leu Leu Lys Leu Ser Ser Thr Thr Cys Ser Val Cys Ser Asp
385 390 395 400

Pro Pro Lys Asp Pro Val Val Thr Leu Cys Gly His Val Phe Cys Tyr
405 410 415

Glu Cys Val Ser Val Asn Ile Asn Gly Asp Asn Asn Thr Cys Pro Ala
420 425 430

Leu Asn Cys His Ser Gln Leu Lys His Asp Val Val Phe Thr Glu Ser
435 440 445

Ala Val Arg Ser Cys Ile Asn Asp Tyr Asp Asp Pro Glu Asp Lys Asn
450 455 460

Ala Leu Val Ala Ser Arg Arg Val Tyr Phe Ile Glu Asn Pro Ser Cys
465 470 475 480

Asp Arg Asp Ser Ser Val Ala Cys Arg Ala Arg Gln Ser Arg His Ser
485 490 495

Thr Asn Lys Asp Asn Ser Ile Ser Gly Leu Asn Leu Ile Phe Thr Phe
500 505 510

Leu Lys Asp Lys Cys Asn Asp Tyr Glu Thr Gly Ala Met Leu Met Ser
515 520 525

Leu Lys Ala Gly Asn Leu Gly Leu Asn Met Val Ala Ala Ser His Val
530 535 540

Ile Leu Leu Asp Leu Trp Trp Asn Pro Thr Thr Glu Asp Gln Ala Ile
545 550 555 560

Asp Arg Ala His Arg Ile Gly Gln Thr Arg Ala Val Thr Val Thr Arg
565 570 575

Ile Ala Ile Lys Asn Thr Val Glu Glu Arg Ile Leu Thr Leu His Glu
580 585 590

Arg Lys Arg Asn Ile Val Ala Ser Ala Leu Gly Glu Lys Asn Trp Gln
595 600 605

Lys Phe Cys Asp Ser Thr Asn Thr Arg Arg Ser Arg Ile Ser Val Phe
610 615 620

Trp Cys Val Glu Tyr Pro Arg Val Phe Ile Asp Lys Arg Asn Lys Thr
625 630 635 640

Phe Ser Tyr Leu Ile Ser His Lys Cys Glu Cys Asn Glu
645 650

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<222> (1)..(807) <223> G1586

<400> 243

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Met Asn Gln Glu Gly Ala Ser His Ser Pro Ser Ser Thr Ser Thr Glu
1 5 10 15

cca gtc cgg gca cgt tgg tca cct aaa ccg gag caa atc ttg ata ctc 96
Pro Val Arg Ala Arg Trp Ser Pro Lys Pro Glu Gln Ile Leu Ile Leu
20 25 30

gaa tcc atc ttc aac agt ggt act gtt aac cca cca aaa gat gaa acg 144
Glu Ser Ile Phe Asn Ser Gly Thr Val Asn Pro Pro Lys Asp Glu Thr
35 40 45

gtg agg ata aga aag atg ctt gag aaa ttc ggt gct gtg gga gac gca 192
Val Arg Ile Arg Lys Met Leu Glu Lys Phe Gly Ala Val Gly Asp Ala
50 55 60

aac gtc ttc tac tgg ttt caa aac cga ccg tca aga tct cgc ccg aga 240
Asn Val Phe Tyr Trp Phe Gln Asn Arg Arg Ser Arg Ser Arg Arg Arg
65 70 75 80

cac ccg cag ctt tta gca gcc acc acc gca gcc gcc acc tcc ata gga 288
His Arg Gln Leu Leu Ala Ala Thr Thr Ala Ala Thr Ser Ile Gly
85 90 95

gct gaa gac cac cag cac atg acg gcc atg agc atg cat caa tat cct 336
Ala Glu Asp His Gln His Met Thr Ala Met Ser Met His Gln Tyr Pro
100 105 110

tgc agc aac aac gag att gat ttg ggg ttt gga agt tgt agc aac tta 384
Cys Ser Asn Asn Leu Ile Asp Leu Gly Phe Gly Ser Cys Ser Asn Leu
115 120 125

tca gct aat tac ttc ctt aat gga tcg tcg tca tct caa atc cot tcc 432
Ser Ala Asn Tyr Phe Leu Asn Gly Ser Ser Ser Ser Gln Ile Pro Ser
130 135 140

ttt ttc ctc ggc ctc tct tct tca agt ggt ggg tgt gag aac aac aat 480
Phe Phe Leu Gly Leu Ser Ser Ser Ser Gly Cys Glu Asn Asn Asn
145 150 155 160

ggt atg gag aat ctc ttc aaa atg tat ggc cat gaa tct gat cat aat 528
Gly Met Glu Asn Leu Phe Lys Met Tyr Gly His Glu Ser Asp His Asn
165 170 175

cat cag cag cag cat cat agc tca aat gct gca tca gtt tta aac cca 576
His Gln Gln Gln His His Ser Ser Asn Ala Ala Ser Val Leu Asn Pro
180 185 190

tct gat caa aac tcc aac tcc caa tac gaa caa gaa ggg ttt atg acg 624
Ser Asp Gln Asn Ser Asn Ser Gln Tyr Glu Gln Glu Gly Phe Met Thr
195 200 205

gtg ttt ata aac gga gtt cct atg gaa gta aca aaa gga gca ata gac 672

Val Phe Ile Asn Gly Val Pro Met Glu Val Thr Lys Gly Ala Ile Asp
210 215 220

atg aaa aca atg ttc ggt gat gat tcg gtg tta ctt cat tcc tct ggt 720
Met Lys Thr Met Phe Gly Asp Asp Ser Val Leu Leu His Ser Ser Gly
225 230 235 240

ctt cct ctt ccc act gat gag ttt ggt ttc ttg atg cat tct tta caa 768
Leu Pro Leu Pro Thr Asp Glu Phe Gly Phe Leu Met His Ser Leu Gln
245 250 255

cat gga caa act tat ttc ctg gta ccg aga cag aca tga 807
His Gly Gln Thr Tyr Phe Leu Val Pro Arg Gln Thr
260 265

<210> 244 <211> 268 <212> PRT <213> Arabidopsis thaliana <400> 244

Met Asn Gln Glu Gly Ala Ser His Ser Pro Ser Ser Thr Ser Thr Glu
1 5 10 15

Pro Val Arg Ala Arg Trp Ser Pro Lys Pro Glu Gln Ile Leu Ile Leu
20 25 30

Glu Ser Ile Phe Asn Ser Gly Thr Val Asn Pro Pro Lys Asp Glu Thr
35 40 45

Val Arg Ile Arg Lys Met Leu Glu Lys Phe Gly Ala Val Gly Asp Ala
50 55 60

Asn Val Phe Tyr Trp Phe Gln Asn Arg Arg Ser Arg Ser Arg Arg Arg
65 70 75 80

His Arg Gln Leu Leu Ala Ala Thr Thr Ala Ala Ala Thr Ser Ile Gly
85 90 95

Ala Glu Asp His Gln His Met Thr Ala Met Ser Met His Gln Tyr Pro
100 105 110

Cys Ser Asn Asn Glu Ile Asp Leu Gly Phe Gly Ser Cys Ser Asn Leu
115 120 125

Ser Ala Asn Tyr Phe Leu Asn Gly Ser Ser Ser Ser Gln Ile Pro Ser
130 135 140

Phe Phe Leu Gly Leu Ser Ser Ser Ser Gly Gly Cys Glu Asn Asn Asn
145 150 155 160

Gly Met Glu Asn Leu Phe Lys Met Tyr Gly His Glu Ser Asp His Asn
165 170 175

His Gln Gln Gln His His Ser Ser Asn Ala Ala Ser Val Leu Asn Pro
180 185 190

Ser Asp Gln Asn Ser Asn Ser Gln Tyr Glu Gln Glu Gly Phe Met Thr
195 200 205

Val Phe Ile Asn Gly Val Pro Met Glu Val Thr Lys Gly Ala Ile Asp
210 215 220

Met Lys Thr Met Phe Gly Asp Asp Ser Val Leu Leu His Ser Ser Gly
225 230 235 240

Leu Pro Leu Pro Thr Asp Glu Phe Gly Phe Leu Met His Ser Leu Gln
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His Gly Gln Thr Tyr Phe Leu Val Pro Arg Gln Thr
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gtg cca act tct gac cac cgg ttt gta gtt caa gag atg atg tgc ttg 99
Val Pro Thr Ser Asp His Arg Phe Val Val Gln Glu Met Met Cys Leu 25
15 20

caa agc tcg agc tgg act aaa gaa gag aac aag aag ttt gag cga gct 147
Gln Ser Ser Ser Trp Thr Lys Glu Glu Asn Lys Lys Phe Glu Arg Ala 40
30 35 40

ctt gct gtc tac gct gat gac acg cct gat cgc tgg ttc aaa gtt gct 195
Leu Ala Val Tyr Ala Asp Asp Thr Pro Asp Arg Trp Phe Lys Val Ala 55
45 50

gct atg atc cct gga aag acc ata tca gat gtc atg agg caa tac tct 243
Ala Met Ile Pro Gly Lys Thr Ile Ser Asp Val Met Arg Gln Tyr Ser 65 70
60

aag ctt gaa gaa gac ctc ttc gat atc gaa gca gga ctt gtc ccg atc 291
Lys Leu Glu Glu Asp Leu Phe Asp Ile Glu Ala Gly Leu Val Pro Ile 80 85 90
75

ccg ggt tac cgt tca gtt act cct tgt gga ttt gat cag gtt gtg agt 339
Pro Gly Tyr Arg Ser Val Thr Pro Cys Gly Phe Asp Gln Val Val Ser
95 100 105

cca cgt gac ttt gat gcg tat cgt aaa ctt cct aat gga gcc aga gga 387
Pro Arg Asp Phe Asp Ala Tyr Arg Lys Leu Pro Asn Gly Ala Arg Gly
110 115 120

ttt gat caa gac cgt agg aaa gga gtt cca tgg acg gag gaa gaa cac 435
Phe Asp Gln Asp Arg Arg Lys Gly Val Pro Trp Thr
125 130 135

agg aga ttc ttg tta ggg ctt ctc aag tat ggg aaa gga gat tgg aga 483
Arg Arg Phe Leu Leu Gly Leu Leu Lys Tyr Gly Lys Gly Asp Trp Arg
140 145 150

aac ata tcg agg aac ttt gtg gga tca aaa aca cca act cag gtt gca 531
Asn Ile Ser Arg Asn Phe Val Gly Ser Lys Thr Pro Thr Gln Val Ala
155 160 165 170

agt cat gcc caa aag tac tac caa aga cag ctt tcc ggt gcg aaa gac 579
Ser His Ala Gln Lys Tyr Tyr Gln Arg Gln Leu Ser Gly Ala Lys Asp
175 180 185

aaa cga cgg cct agc att cac gac atc acc acc gtc aat ctt ctc aat 627
Lys Arg Arg Pro Ser Ile His Asp Ile Thr Thr Val Asn Leu Leu Asn
190 195 200

gcc aat ctt agc cgt cca tcg tct gat cac ggt tgc tta gtc tca aaa 675
Ala Asn Leu Ser Arg Pro Ser Ser Asp His Gly Cys Leu Val Ser Lys
205 210 215

cag gcc gag ccg aaa cta ggg ttc acc gac agg gat aat gca gag gag 723
Gln Ala Glu Pro Lys Leu Gly Phe Thr Asp Arg Asp Asn Ala Glu Glu
220 225 230

gga gtt atg ttt ctt ggt cag aat cta tcc tcg gtc ttc tct tcc tac 771
Gly Val Met Phe Leu Gly Gln Asn Leu Ser Ser Val Phe Ser Ser Tyr
235 240 245 250

gat cct gcc att aag ttt tcc gga gca aat gtt tac ggt gaa gga ggt 819
Asp Pro Ala Ile Lys Phe Ser Gly Ala Asn Val Tyr Gly Glu Gly Gly
255 260 265

tac tgt atc tca caa gat ctt gaa acg aga aaa tga gaattttgaa 865
Tyr Cys Ile Ser Gln Asp Leu Glu Thr Arg Lys
270 275

attttaacta ttgcaacgaa accataattg c 896

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 Lys Glu Glu Asn Lys Lys Phe Glu Arg Ala Leu Ala Val Tyr Ala Asp
 35 40 45
 Asp Thr Pro Asp Arg Trp Phe Lys Val Ala Ala Met Ile Pro Gly Lys
 50 55 60
 Thr Ile Ser Asp Val Met Arg Gln Tyr Ser Lys Leu Glu Glu Asp Leu
 65 70 75 80
 Phe Asp Ile Glu Ala Gly Leu Val Pro Ile Pro Gly Tyr Arg Ser Val
 85 90 95
 Thr Pro Cys Gly Phe Asp Gln Val Val Ser Pro Arg Asp Phe Asp Ala
 100 105 110
 Tyr Arg Lys Leu Pro Asn Gly Ala Arg Gly Phe Asp Gln Asp Arg Arg
 115 120 125
 Lys Gly Val Pro Trp Thr Glu Glu Glu His Arg Arg Phe Leu Leu Gly
 130 135 140
 Leu Leu Lys Tyr Gly Lys Gly Asp Trp Arg Asn Ile Ser Arg Asn Phe
 145 150 155 160
 Val Gly Ser Lys Thr Pro Thr Gln Val Ala Ser His Ala Gln Lys Tyr
 165 170 175
 Tyr Gln Arg Gln Leu Ser Gly Ala Lys Asp Lys Arg Arg Pro Ser Ile
 180 185 190
 His Asp Ile Thr Thr Val Asn Leu Leu Asn Ala Asn Leu Ser Arg Pro
 195 200 205
 Ser Ser Asp His Gly Cys Leu Val Ser Lys Gln Ala Glu Pro Lys Leu
 210 215 220
 Gly Phe Thr Asp Arg Asp Asn Ala Glu Glu Gly Val Met Phe Leu Gly
 225 230 235 240
 Gln Asn Leu Ser Ser Val Phe Ser Ser Tyr Asp Pro Ala Ile Lys Phe

245

250

255

Ser Gly Ala Asn Val Tyr Gly Glu Gly Gly Tyr Cys Ile Ser Gln Asp
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Leu Glu Thr Arg Lys
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ttg agg aat aga gat gaa gaa act gca gac aag cag ata caa ttc aat 96
 Leu Arg Asn Arg Asp Glu Glu Thr Ala Asp Lys Gln Ile Gln Phe Asn
 20 25 30

gac caa agt ttt ggg gga aat gac tat gca ccc aag gta cgg aag cca 144
 Asp Gln Ser Phe Gly Gly Asn Asp Tyr Ala Pro Lys Val Arg Lys Pro
 35 40 45

tac acg ata aca aaa gag aga gag aga tgg aca gat gaa gag cac aag 192
 Tyr Thr Ile Thr Lys Glu Arg Glu Arg Trp Thr Asp Glu Glu His Lys
 50 55 60

aag ttt gtt gaa gcc ttg aaa tta tac ggg cga gct tgg aga cga ata 240
 Lys Phe Val Glu Ala Leu Lys Leu Tyr Gly Arg Ala Trp Arg Arg Ile
 65 70 75 80

gaa gaa cat gtg ggc tca aag acc gca gtt cag att cga agc cat gct 288
 Glu Glu His Val Gly Ser Lys Thr Ala Val Gln Ile Arg Ser His Ala
 85 90 95

cag aag ttt ttc tct aag gtt gct cga gaa gca act gga ggt gat ggg 336
 Gln Lys Phe Phe Ser Lys Val Ala Arg Glu Ala Thr Gly Gly Asp Gly
 100 105 110

agc tca gta gag ccg att gta ata cct cct cct cgt ccc aag aga aag 384
 Ser Ser Val Glu Pro Ile Val Ile Pro Pro Pro Arg Pro Lys Arg Lys
 115 120 125

cca gcg cat ccg tac cct cgt aag ttt ggg aac gag gca gat caa aca 432
 Pro Ala His Pro Tyr Pro Arg Lys Phe Gly Asn Glu Ala Asp Gln Thr
 130 135 140

agt aga tcg gtt tct ccc tca gaa cgt gat act caa tct cca acc tct 480
 Ser Arg Ser Val Ser Pro Ser Glu Arg Asp Thr Gln Ser Pro Thr Ser
 145 150 155 160

gtg ttg tcc act gtt gga tca gaa gca ttg tgt tcc ctt gat tcg agt 528
 Val Leu Ser Thr Val Gly Ser Glu Ala Leu Cys Ser Leu Asp Ser Ser

	165	170	175	
tca ccc aat cga agc ttg tcc cca gtt tct tct gca tca cca cca gct				576
Ser Pro Asn Arg Ser Leu Ser Pro Val Ser Ser Ala Ser Pro Pro Ala	180	185	190	
gct ctt aca acc act gca aat gca cct gaa gag ctt gag act ctg aag				624
Ala Leu Thr Thr Ala Asn Ala Pro Glu Glu Leu Glu Thr Leu Lys	195	200	205	
ctg gag ttg ttt cct agt gag aga ctc tta aac agg gag agc tcg atc				672
Leu Glu Leu Phe Pro Ser Glu Arg Leu Leu Asn Arg Glu Ser Ser Ile	210	215	220	
aag gaa cca acg aag caa agt ctt aaa ctc ttt ggg aag aca gtt ttg				720
Lys Glu Pro Thr Lys Gln Ser Leu Lys Leu Phe Gly Lys Thr Val Leu	225	230	235	240
gta tct gat tca ggc atg tcc tct tct cta aca act tca aca tat tgt				768
Val Ser Asp Ser Gly Met Ser Ser Ser Leu Thr Thr Ser Thr Tyr Cys	245	250	255	
aaa tcc cca att cag cca tta cca cgg aaa ctc tca tca tcc aag aca				816
Lys Ser Pro Ile Gln Pro Leu Pro Arg Lys Leu Ser Ser Ser Lys Thr	260	265	270	
cta ccc ata ata aga aac tca caa gaa gaa ctc ttg agc tgc tgg ata				864
Leu Pro Ile Ile Arg Asn Ser Gln Glu Glu Leu Leu Ser Cys Trp Ile	275	280	285	
caa gtc cct ctt aag caa gaa gat gtg gaa aat aga tgt ttg gat tca				912
Gln Val Pro Leu Lys Gln Glu Asp Val Glu Asn Arg Cys Ala Asp Ser	290	295	300	
gga aag gct gtc caa aac gaa gga tca tgc act gga tca aac act ggt				960
Gly Lys Ala Val Gln Asn Glu Gly Ser Ser Thr Gly Ser Asn Thr Gly	305	310	315	320
tcg gtg gat gat acg gga cac acg gaa aag acc aca gaa ccc gaa aca				1008
Ser Val Asp Asp Thr Gly His Thr Glu Lys Thr Thr Glu Pro Glu Thr	325	330	335	
atg cta tgt caa tgg gag ttt aaa cca agt gag agg tct gca ttt tct				1056
Met Leu Cys Gln Trp Glu Phe Lys Pro Ser Glu Arg Ser Ala Phe Ser	340	345	350	
gag ctc aga aga aca aac tcc gag tca aat tca aga gga ttt ggt cca				1104
Glu Leu Arg Arg Thr Asn Ser Glu Ser Asn Ser Arg Glu Phe Gly Pro	355	360	365	
tac aag aag aga aag atg gta aca gaa gaa gaa gag cat gag att cat				1152
Tyr Lys Lys Arg Lys Met Val Thr Glu Glu Glu Glu His Glu Ile His	370	375	380	
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Leu His Leu	385			

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Met Ala Ser Ser Pro Leu Thr Ala Asn Val Gln Gly Thr Asn Ala Ser
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Leu Arg Asn Arg Asp Glu Glu Thr Ala Asp Lys Gln Ile Gln Phe Asn
20 25 30

Asp Gln Ser Phe Gly Gly Asn Asp Tyr Ala Pro Lys Val Arg Lys Pro
35 40 45

Tyr Thr Ile Thr Lys Glu Arg Glu Arg Trp Thr Asp Glu Glu His Lys
50 55 60

Lys Phe Val Glu Ala Leu Lys Leu Tyr Gly Arg Ala Trp Arg Arg Ile
65 70 75 80

Glu Glu His Val Gly Ser Lys Thr Ala Val Gln Ile Arg Ser His Ala
85 90 95

Gln Lys Phe Phe Ser Lys Val Ala Arg Glu Ala Thr Gly Gly Asp Gly
100 105 110

Ser Ser Val Glu Pro Ile Val Ile Pro Pro Pro Arg Pro Lys Arg Lys
115 120 125

Pro Ala His Pro Tyr Pro Arg Lys Phe Gly Asn Glu Ala Asp Gln Thr
130 135 140

Ser Arg Ser Val Ser Pro Ser Glu Arg Asp Thr Gln Ser Pro Thr Ser
145 150 155 160

Val Leu Ser Thr Val Gly Ser Glu Ala Leu Cys Ser Leu Asp Ser Ser
165 170 175

Ser Pro Asn Arg Ser Leu Ser Pro Val Ser Ser Ala Ser Pro Pro Ala
180 185 190

Ala Leu Thr Thr Thr Ala Asn Ala Pro Glu Glu Leu Glu Thr Leu Lys
195 200 205

Leu Glu Leu Phe Pro Ser Glu Arg Leu Leu Asn Arg Glu Ser Ser Ile

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215

220

Lys Glu Pro Thr Lys Gln Ser Leu Lys Leu Phe Gly Lys Thr Val Leu
225 230 235 240

Val Ser Asp Ser Gly Met Ser Ser Ser Leu Thr Thr Ser Thr Tyr Cys
245 250 255

Lys Ser Pro Ile Gln Pro Leu Pro Arg Lys Leu Ser Ser Ser Lys Thr
260 265 270

Leu Pro Ile Ile Arg Asn Ser Gln Glu Glu Leu Leu Ser Cys Trp Ile
275 280 285

Gln Val Pro Leu Lys Gln Glu Asp Val Glu Asn Arg Cys Leu Asp Ser
290 295 300

Gly Lys Ala Val Gln Asn Glu Gly Ser Ser Thr Gly Ser Asn Thr Gly
305 310 315 320

Ser Val Asp Asp Thr Gly His Thr Glu Lys Thr Thr Glu Pro Glu Thr
325 330 335

Met Leu Cys Gln Trp Glu Phe Lys Pro Ser Glu Arg Ser Ala Phe Ser
340 345 350

Glu Leu Arg Arg Thr Asn Ser Glu Ser Asn Ser Arg Gly Phe Gly Pro
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Tyr Lys Lys Arg Lys Met Val Thr Glu Glu Glu Glu His Glu Ile His
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Leu His Leu
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Lys Met Phe Glu Gln Ala Leu Val Leu Phe Pro Glu Gly Ser Pro Asn

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	Arg Trp Glu Arg Ile Ala Asp Gln Leu His Lys Ser Ala Gly Glu Val			
	30	35	40	
	agg gag cat tac gag gtc ttg gtt cat gat gtt ttc gag att gat tct			195
	Arg Glu His Tyr Glu Val Leu Val His Asp Val Phe Glu Ile Asp Ser			
	45	50	55	
	ggt cga gtt gat gtc cct gat tac atg gat gac tcg gcg gct gcg gcg			243
	Gly Arg Val Asp Val Pro Asp Tyr Met Asp Ser Ala Ala Ala Ala			
	60	65	70	75
	gcg ggt tgg gat tcc gct ggt cag atc tct ttt ggg tct aaa cat ggc			291
	Ala Gly Trp Asp Ser Ala Gly Gln Ile Ser Phe Gly Ser Lys His Gly			
	80	85	90	
	gag agt gaa cgc aaa aga gga act cct tgg aca gag aac gaa cac aaa			339
	Glu Ser Glu Arg Lys Arg Gly Thr Pro Trp Thr Glu Asn Glu His Lys			
	95	100	105	
	ttg ttt ctg atc gga tta aag aga tat ggt aag gga gat tgg agg agt			387
	Leu Phe Leu Ile Gly Leu Lys Arg Tyr Gly Lys Gly Asp Trp Arg Ser			
	110	115	120	
	atc tcg aga aac gtt gtg gtg acg agg aca cgc acg caa gtc gcg agt			435
	Ile Ser Arg Asn Val Val Thr Thr Arg Thr Pro Thr Gln Val Ala Ser			
	125	130	135	
	cac gct cag aag tat ttt ctg aga cag aac tcg gtg aag aag gag agg			483
	His Ala Gln Lys Tyr Phe Leu Arg Gln Asn Ser Val Lys Lys Glu Arg			
	140	145	150	155
	aaa agg tcg agc atc cat gat ata act acg gtt gat gct act ttg gct			531
	Lys Arg Ser Ser Ile His Asp Ile Thr Thr Val Asp Ala Thr Leu Ala			
	160	165	170	
	atg cct ggg tct aac atg gac tgg act ggc caa cac ggg agt cct gtt			579
	Met Pro Gly Ser Asn Met Asp Trp Thr Gly Gln His Gly Pro Val			
	175	180	185	
	cag gcg ccg cag cag caa cag att atg tct gag ttc ggt cag caa ttg			627
	Gln Ala Pro Gln Gln Gln Gln Ile Met Ser Glu Phe Gly Gln Gln Leu			
	190	195	200	
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Ala Asp Gln Leu His Lys Ser Ala Gly Glu Val Arg Glu His Tyr Glu
35 40 45

Val Leu Val His Asp Val Phe Glu Ile Asp Ser Gly Arg Val Asp Val
50 55 60

Pro Asp Tyr Met Asp Asp Ser Ala Ala Ala Ala Gly Trp Asp Ser
65 70 75 80

Ala Gly Gln Ile Ser Phe Gly Ser Lys His Gly Glu Ser Glu Arg Lys
85 90 95

Arg Gly Thr Pro Trp Thr Glu Asn Glu His Lys Leu Phe Leu Ile Gly
100 105 110

Leu Lys Arg Tyr Gly Lys Gly Asp Trp Arg Ser Ile Ser Arg Asn Val
115 120 125

Val Val Thr Arg Thr Pro Thr Gln Val Ala Ser His Ala Gln Lys Tyr
130 135 140

Phe Leu Arg Gln Asn Ser Val Lys Lys Glu Arg Lys Arg Ser Ser Ile
145 150 155 160

His Asp Ile Thr Thr Val Asp Ala Thr Leu Ala Met Pro Gly Ser Asn
165 170 175

Met Asp Trp Thr Gly Gln His Gly Ser Pro Val Gln Ala Pro Gln Gln
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Gln Gln Ile Met Ser Glu Phe Gly Gln Gln Leu Asn Pro Gly His Phe
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Glu Asp Phe Gly Phe Arg Met
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 Met Gly Arg
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 Ala Pro Cys Cys Glu Lys Ile Gly Leu Lys Arg Gly Arg Trp Thr Ala
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 Glu Glu Asp Glu Ile Leu Thr Lys Tyr Ile Gln Thr Asn Gly Glu Gly
 20 25 30 35
 tct tgg cga tct ttg cct aag aaa gct gga ttg ttg aga tgt gga aag 320
 Ser Trp Arg Ser Leu Pro Lys Lys Ala Gly Leu Leu Arg Cys Gly Lys
 40 45 50
 agc tgt aga cta agg tgg ata aac tac tta aga aga gac tta aaa aga 368
 Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg Arg Asp Leu Lys Arg
 55 60 65
 gga aat att act tcc gac gaa gaa gaa ata atc gtc aag ttg cat tcc 416
 Gly Asn Ile Thr Ser Asp Glu Glu Glu Ile Ile Val Lys Leu His Ser
 70 75 80
 ctt ctc ggc aac aga tgg tca ctt att gca aca cat cta cca gga aga 464
 Leu Leu Gly Asn Arg Trp Ser Leu Ile Ala Thr His Leu Pro Gly Arg
 85 90 95
 aca gac aac gaa att aaa aac tat tgg aac tca cat ctc agc cgc aaa 512
 Thr Asp Asn Glu Ile Lys Asn Tyr Trp Asn Ser His Leu Ser Arg Lys
 100 105 110 115
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 Ile Tyr Ala Phe Thr Ala Val Ser Gly Asp Gly His Asn Leu Leu Val
 120 125 130
 aac gat gta gtc ttg aag aaa tct tgt tca tog tct tct gga gcc aag 608
 Asn Asp Val Val Leu Lys Lys Ser Cys Ser Ser Ser Ser Gly Ala Lys
 135 140 145
 aac aat aac aag acc aag aag aag aag gga agg act agt agg tca 656
 Asn Asn Asn Lys Thr Lys Lys Lys Lys Lys Gly Arg Thr Ser Arg Ser
 150 155 160
 tcc atg aag aaa cac aag caa atg gtg acg gcc tca caa tgt ttc tca 704
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 165 170 175
 caa cct aag gag cta gag agt gat ttc agt gag gga ggg caa aat ggt 752
 Gln Pro Lys Glu Leu Glu Ser Asp Phe Ser Glu Gly Gly Gln Asn Gly
 180 185 190 195
 aat ttt gaa gga gag tct ttg ggg cct tat gag tgg ttg gat ggt gag 800
 Asn Phe Glu Gly Glu Ser Leu Gly Pro Tyr Glu Trp Leu Asp Gly Glu

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Leu Glu Arg Ile Leu Ser Ser Cys Val Trp Glu Cys Thr Ser Glu Glu	215	220	225	
gct gtg att gga gta aat gat gaa aag gtg tgt gag agt ggg gac aat				896
Ala Val Ile Gly Val Asn Asp Glu Lys Val Cys Glu Ser Gly Asp Asn	230	235	240	
agt agt tgt tgt gtt aat ttg ttt gaa gaa gaa caa gga agc gag aca				944
Ser Ser Cys Cys Val Asn Leu Phe Glu Glu Glu Gln Gly Ser Glu Thr	245	250	255	
aag att ggt cac gta gga atc aca gag gtt gat cat gat atg acg gtg				992
Lys Ile Gly His Val Gly Ile Thr Glu Val Asp His Asp Met Thr Val	260	265	270	275
gaa aga gaa aga gag gga agt ttt tta agt tgg aat tca aat gaa aat				1040
Glu Arg Glu Arg Glu Gly Ser Phe Leu Ser Ser Asn Ser Asn Glu Asn	280	285	290	
aat gat aaa gat tgg tgg gtt ggt cta tgt aat tct tca gaa gtt ggg				1088
Asn Asp Lys Asp Trp Trp Val Gly Leu Cys Asn Ser Ser Glu Val Gly	295	300	305	
ttt ggg gtt gat gag gag ttg ctt gat tgg gag ttt caa ggt aat gtc				1136
Phe Gly Val Asp Glu Glu Leu Leu Asp Trp Glu Phe Gln Gly Asn Val	310	315	320	
act tgt caa agt gat gat cta tgg gat ctc tca gat att gga gag ata				1184
Thr Cys Gln Ser Asp Asp Leu Trp Asp Leu Ser Asp Ile Gly Glu Ile	325	330	335	
aca ttg gag tga ttgtaccgag caagtggatt ggcggccgct ctgacaggc				1236
Thr Leu Glu	340			
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Trp Thr Ala Glu Glu Asp Glu Ile Leu Thr Lys Tyr Ile Gln Thr Asn	20	25	30	
Gly Glu Gly Ser Trp Arg Ser Leu Pro Lys Lys Ala Gly Leu Leu Arg	35	40	45	

Cys Gly Lys Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg Arg Asp
50 55 60

Leu Lys Arg Gly Asn Ile Thr Ser Asp Glu Glu Ile Ile Val Lys
65 70 75 80

Leu His Ser Leu Leu Gly Asn Arg Trp Ser Leu Ile Ala Thr His Leu
85 90 95

Pro Gly Arg Thr Asp Asn Glu Ile Lys Asn Tyr Trp Asn Ser His Leu
100 105 110

Ser Arg Lys Ile Tyr Ala Phe Thr Ala Val Ser Gly Asp Gly His Asn
115 120 125

Leu Leu Val Asn Asp Val Val Leu Lys Lys Ser Cys Ser Ser Ser Ser
130 135 140

Gly Ala Lys Asn Asn Asn Lys Thr Lys Lys Lys Lys Lys Gly Arg Thr
145 150 155 160

Ser Arg Ser Ser Met Lys Lys His Lys Gln Met Val Thr Ala Ser Gln
165 170 175

Cys Phe Ser Gln Pro Lys Glu Leu Glu Ser Asp Phe Ser Glu Gly Gly
180 185 190

Gln Asn Gly Asn Phe Glu Gly Glu Ser Leu Gly Pro Tyr Glu Trp Leu
195 200 205

Asp Gly Glu Leu Glu Arg Leu Leu Ser Ser Cys Val Trp Glu Cys Thr
210 215 220

Ser Glu Glu Ala Val Ile Gly Val Asn Asp Glu Lys Val Cys Glu Ser
225 230 235 240

Gly Asp Asn Ser Ser Cys Cys Val Asn Leu Phe Glu Glu Glu Gln Gly
245 250 255

Ser Glu Thr Lys Ile Gly His Val Gly Ile Thr Glu Val Asp His Asp
260 265 270

Met Thr Val Glu Arg Glu Arg Glu Gly Ser Phe Leu Ser Ser Asn Ser

275

280

285

Asn Glu Asn Asn Asp Lys Asp Trp Trp Val Gly Leu Cys Asn Ser Ser
290 295 300

Glu Val Gly Phe Gly Val Asp Glu Glu Leu Leu Asp Trp Glu Phe Gln
305 310 315 320

Gly Asn Val Thr Cys Gln Ser Asp Asp Leu Trp Asp Leu Ser Asp Ile
325 330 335

Gly Glu Ile Thr Leu Glu
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ctc atg gag gaa act aag agc ggc gtc gca gct tct ggt gaa ggt gcc 96
Leu Met Glu Glu Thr Lys Ser Gly Val Ala Ala Ser Gly Glu Gly Ala
20 25 30

acg tgg acg gcg gca gag aac aag gca ttc gag aat gct ttg gcg gtt 144
Thr Trp Thr Ala Ala Glu Asn Lys Ala Phe Glu Asn Ala Leu Ala Val
35 40 45

tac gac gac aac act cct gat cgg tgg cag aag gtg gct gcg gtg att 192
Tyr Asp Asp Asn Thr Pro Asp Arg Trp Gln Lys Val Ala Ala Val Ile
50 55 60

cgg ggg aag aca gtg agt gac gta att aga cag tat aac gat ttg gaa 240
Pro Gly Lys Thr Val Ser Asp Val Ile Arg Gln Tyr Asn Asp Leu Glu
65 70 75 80

gct gat gtc agc agc atc gag gcc ggt tta atc ccg gtc ccc ggt tac 288
Ala Asp Val Ser Ser Ile Glu Ala Gly Leu Ile Pro Val Pro Gly Tyr
85 90 95

atc acc tgg ccg cct ttc act cta gat tgg gcc ggc ggc ggt gcc gga 336
Ile Thr Ser Pro Pro Phe Thr Leu Asp Trp Ala Gly Gly Gly Gly
100 105 110

tgt aac ggg ttt aaa ccg ggt cat cag gtt tgt aat aaa ccg tgg cag 384
Cys Asn Gly Phe Lys Pro Gly His Gln Val Cys Asn Lys Arg Ser Gln
115 120 125

gcc ggt aga tgg ccg gag ctg gag cgg aag aaa gcc gtt cct tgg acg 432
Ala Gly Arg Ser Pro Glu Leu Glu Arg Lys Lys Gly Val Pro Trp Thr

130	135	140	
gag gaa gaa cac aag cta ttt cta atg ggt ttg aag aaa tat ggg aaa			480
Glu Glu Glu His Lys Leu Phe Leu Met Gly Leu Lys Lys Tyr Gly Lys			
145	150	155	160
gga gat tgg aga aac ata tct cgg aac ttt gtg ata acg cga acg cca			528
Gly Asp Trp Arg Asn Ile Ser Arg Asn Phe Val Ile Thr Arg Thr Pro			
	165	170	175
aca caa gta gct agc cac gcc caa aag tac ttc atc cgg caa ctt tcc			576
Thr Gln Val Ala Ser His Ala Gln Lys Tyr Phe Ile Arg Gln Leu Ser			
	180	185	190
ggc ggc aag gac aag aga cga gca agc att cac gac ata acc acc gta			624
Gly Gly Lys Asp Lys Arg Arg Ala Ser Ile His Asp Ile Thr Thr Val			
	195	200	205
aat ctc gaa gag gag gct tct ttg gag acc aat aag agc tcc att gtt			672
Asn Leu Glu Glu Glu Ala Ser Leu Glu Thr Asn Lys Ser Ser Ile Val			
	210	215	220
gtt gga gat cag cgt tca agg cta acc gcg ttt cct tgg aac caa acg			720
Val Gly Asp Gln Arg Ser Arg Leu Thr Ala Phe Pro Trp Asn Gln Thr			
	225	230	235
gac aac aat gga aca cag gca gac gct ttc aat ata acg att gga aac			768
Asp Asn Asn Gly Thr Gln Ala Asp Ala Phe Asn Ile Thr Ile Gly Asn			
	245	250	255
gct att agt ggc gtt cat tca tac ggc cag gtt atg att gga ggg tat			816
Ala Ile Ser Gly Val His Ser Tyr Gly Gln Val Met Ile Gly Gly Tyr			
	260	265	270
aac aat gca gat tct tgc tat gac gcc caa aac aca atg ttt caa cta			864
Asn Asn Ala Asp Ser Cys Tyr Asp Ala Gln Asn Thr Met Phe Gln Leu			
	275	280	285
tag			867
<210> 254 <211> 288 <212> PRT <213> Arabidopsis thaliana <400> 254			
Met Glu Val Met Arg Pro Ser Thr Ser His Val Ser Gly Gly Asn Trp			
1	5	10	15
Leu Met Glu Glu Thr Lys Ser Gly Val Ala Ala Ser Gly Glu Gly Ala			
	20	25	30
Thr Trp Thr Ala Ala Glu Asn Lys Ala Phe Glu Asn Ala Leu Ala Val			
	35	40	45
Tyr Asp Asp Asn Thr Pro Asp Arg Trp Gln Lys Val Ala Ala Val Ile			
	50	55	60

Pro Gly Lys Thr Val Ser Asp Val Ile Arg Gln Tyr Asn Asp Leu Glu
65 70 75 80

Ala Asp Val Ser Ser Ile Glu Ala Gly Leu Ile Pro Val Pro Gly Tyr
85 90 95

Ile Thr Ser Pro Pro Phe Thr Leu Asp Trp Ala Gly Gly Gly Gly Gly
100 105 110

Cys Asn Gly Phe Lys Pro Gly His Gln Val Cys Asn Lys Arg Ser Gln
115 120 125

Ala Gly Arg Ser Pro Glu Leu Glu Arg Lys Lys Gly Val Pro Trp Thr
130 135 140

Glu Glu Glu His Lys Leu Phe Leu Met Gly Leu Lys Lys Tyr Gly Lys
145 150 155 160

Gly Asp Trp Arg Asn Ile Ser Arg Asn Phe Val Ile Thr Arg Thr Pro
165 170 175

Thr Gln Val Ala Ser His Ala Gln Lys Tyr Phe Ile Arg Gln Leu Ser
180 185 190

Gly Gly Lys Asp Lys Arg Arg Ala Ser Ile His Asp Ile Thr Thr Val
195 200 205

Asn Leu Glu Glu Glu Ala Ser Leu Glu Thr Asn Lys Ser Ser Ile Val
210 215 220

Val Gly Asp Gln Arg Ser Arg Leu Thr Ala Phe Pro Trp Asn Gln Thr
225 230 235 240

Asp Asn Asn Gly Thr Gln Ala Asp Ala Phe Asn Ile Thr Ile Gly Asn
245 250 255

Ala Ile Ser Gly Val His Ser Tyr Gly Gln Val Met Ile Gly Gly Tyr
260 265 270

Asn Asn Ala Asp Ser Cys Tyr Asp Ala Gln Asn Thr Met Phe Gln Leu
275 280 285

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<222> (34)..(786) <223> G1646

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Met Asp Asn Asn Asn Asn Asn
1 5

aac aac cag caa cca cca cca acc tcc gtc tat cca cct ggc tcc gcc 102
Asn Asn Gln Gln Pro Pro Pro Thr Thr Val Tyr Pro Pro Gly Ser Ala
10 15 20

gtc aca acc gta atc cct cct cca cca tct gga tct gca tca ata gtc 150
Val Thr Thr Val Ile Pro Pro Pro Pro Ser Gly Ser Ala Ser Ile Val
25 30 35

acc gga gga gga ggc aca tac cac cac ctc ctc cag caa caa cag caa 198
Thr Gly Gly Gly Ala Thr Tyr His His Leu Leu Gln Gln Gln Gln
40 45 50 55

cag ctt caa atg ttc tgg aca tac cag aga caa gag atc gaa cag gta 246
Gln Leu Gln Met Phe Trp Thr Tyr Gln Arg Gln Glu Ile Glu Gln Val
60 65 70

aac gat ttc aaa aac cat cag ctc cct cta gct cgt atc aaa aaa atc 294
Asn Asp Phe Lys Asn His Gln Leu Pro Leu Ala Arg Ile Lys Lys Ile
75 80 85

atg aaa gct gat gaa gat gtg cgt atg atc tcc gcc gaa gca ccg att 342
Met Lys Ala Asp Glu Asp Val Arg Met Ile Ser Ala Glu Ala Pro Ile
90 95 100

ctc ttc gcg aaa gct tgt gag ctt ttc att ctc gaa ctt acg att aga 390
Leu Phe Ala Lys Ala Cys Glu Leu Phe Ile Leu Glu Leu Thr Ile Arg
105 110 115

tct tgg ctt cac gct gaa gag aac aaa cgt cgt acg ctt cag aaa aac 438
Ser Trp Leu His Ala Glu Glu Asn Lys Arg Arg Thr Leu Gln Lys Asn
120 125 130 135

gat atc gct gct gcg att act aga acc gat atc ttc gat ttc ctt gtt 486
Asp Ile Ala Ala Ala Ile Thr Arg Thr Asp Ile Phe Asp Phe Leu Val
140 145 150

gat att gtt cct agg gaa gag atc aag gaa gag gaa gat gca gca tgc 534
Asp Ile Val Pro Arg Glu Glu Ile Lys Glu Glu Glu Asp Ala Ala Ser
155 160 165

gct ctt ggt gga gga ggt atg gtt gct ccc gcc gcg agc ggt gtt cct 582
Ala Leu Gly Gly Gly Met Val Ala Pro Ala Ala Ser Gly Val Pro
170 175 180

tat tat tat cca ccg atg gga caa ccg gcg gtt cct gga ggg atg atg 630
Tyr Tyr Tyr Pro Pro Met Gly Gln Pro Ala Val Pro Gly Gly Met Met
185 190 195

att gga aga ccg gcg atg gat cct agc ggt gtt tat gct cag cct cct 678
 Ile Gly Arg Pro Ala Met Asp Pro Ser Gly Val Tyr Ala Gln Pro Pro
 200 205 210 215

tct cag gca tgg caa agc gtt tgg cag aat tca gct ggt ggt ggt gat 726
 Ser Gln Ala Trp Gln Ser Val Trp Gln Asn Ser Ala Gly Gly Gly Asp
 220 225 230

gat gtg tct tat gga agt gga gga agt agc ggc cat ggt aat ctc gat 774
 Asp Val Ser Tyr Gly Ser Gly Gly Ser Ser Gly His Gly Asn Leu Asp
 235 240 245

agc caa ggg taa gtgaattcta gtag 800
 Ser Gln Gly
 250

<210> 256 <211> 250 <212> PRT <213> Arabidopsis thaliana <400> 256

Met Asp Asn Asn Asn Asn Asn Asn Asn Gln Gln Pro Pro Pro Thr Ser
 1 5 10 15

Val Tyr Pro Pro Gly Ser Ala Val Thr Thr Val Ile Pro Pro Pro Pro
 20 25 30

Ser Gly Ser Ala Ser Ile Val Thr Gly Gly Gly Ala Thr Tyr His His
 35 40 45

Leu Leu Gln Gln Gln Gln Gln Gln Leu Gln Met Phe Trp Thr Tyr Gln
 50 55 60

Arg Gln Glu Ile Glu Gln Val Asn Asp Phe Lys Asn His Gln Leu Pro
 65 70 75 80

Leu Ala Arg Ile Lys Lys Ile Met Lys Ala Asp Glu Asp Val Arg Met
 85 90 95

Ile Ser Ala Glu Ala Pro Ile Leu Phe Ala Lys Ala Cys Glu Leu Phe
 100 105 110

Ile Leu Glu Leu Thr Ile Arg Ser Trp Leu His Ala Glu Glu Asn Lys
 115 120 125

Arg Arg Thr Leu Gln Lys Asn Asp Ile Ala Ala Ala Ile Thr Arg Thr
 130 135 140

Asp Ile Phe Asp Phe Leu Val Asp Ile Val Pro Arg Glu Glu Ile Lys
 145 150 155 160

Glu Glu Glu Asp Ala Ala Ser Ala Leu Gly Gly Gly Gly Met Val Ala
165 170 175

Pro Ala Ala Ser Gly Val Pro Tyr Tyr Tyr Pro Pro Met Gly Gln Pro
180 185 190

Ala Val Pro Gly Gly Met Met Ile Gly Arg Pro Ala Met Asp Pro Ser
195 200 205

Gly Val Tyr Ala Gln Pro Pro Ser Gln Ala Trp Gln Ser Val Trp Gln
210 215 220

Asn Ser Ala Gly Gly Gly Asp Asp Val Ser Tyr Gly Ser Gly Gly Ser
225 230 235 240

Ser Gly His Gly Asn Leu Asp Ser Gln Gly
245 250

<210> 257 <211> 938 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (142)..(903) <223> G1667

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caaaatctcc ttacttaaac tcacaaactc ctcacaaatt tctggaatct ttcagtgaa 120

catataacaa cattcataac a atg gct gga ggt aca gct cta act cca acc 171
Met Ala Gly Gly Thr Ala Leu Thr Pro Thr
1 5 10

tct gta gga tcc aag tct gtt cca atg agg aac cat gaa gca aca gag 219
Ser Val Gly Ser Lys Ser Val Pro Met Arg Asn His Glu Ala Thr Glu
15 20 25

aga ggc aac acc aac aac aac ctg aga gca tta ccc aaa gcc gtc caa 267
Arg Gly Asn Thr Asn Asn Asn Leu Arg Ala Leu Pro Lys Ala Val Gln
30 35 40

cag gtt tca tca atc gaa gga gag atg gct aag agg cca cgt gcc aga 315
Pro Val Ser Ser Ile Glu Gly Glu Met Ala Lys Arg Pro Arg Gly Arg
45 50 55

ccc gct gcc tcc aag aac aaa ccc aaa cca cca atc att gtg act cac 363
Pro Ala Gly Ser Lys Asn Lys Pro Lys Pro Pro Ile Ile Val Thr His
60 65 70

gac agt cca aat tcc ctc aga gct aac gcc gtt gag atc agc tca ggt 411
Asp Ser Pro Asn Ser Leu Arg Ala Asn Ala Val Glu Ile Ser Ser Gly
75 80 85 90

tgt gac atc tgt gag act tta tcg gat ttt gca aga agg aaa cag aga 459
 Cys Asp Ile Cys Glu Thr Leu Ser Asp Phe Ala Arg Arg Lys Gln Arg
 95 100 105
 ggt ctc tgc att ctc agt gcc aat ggt tgt gtc acc aat gtg aca tta 507
 Gly Leu Cys Ile Leu Ser Ala Asn Gly Cys Val Thr Asn Val Thr Leu
 110 115 120
 agg caa cca gct tca tca gga gca att gtc aca tta cac gga cgt tac 555
 Arg Gln Pro Ala Ser Ser Gly Ala Ile Val Thr Leu His Gly Arg Tyr
 125 130 135
 gag atc ctc tca ttg ctt gga tca atc ttg cct cca cca gca cca ctt 603
 Glu Ile Leu Ser Leu Leu Gly Ser Ile Leu Pro Pro Ala Pro Leu
 140 145 150
 gga ata act ggt ctg acc att tac tta gcc gga cct caa gga cag gtt 651
 Gly Ile Thr Gly Leu Thr Ile Tyr Leu Ala Gly Pro Gln Gly Gln Val
 155 160 165 170
 gtt ggt gga gga gtg gtt ggt ggg cta atc gca tct ggt cct gtt gtt 699
 Val Gly Gly Gly Val Val Gly Gly Leu Ile Ala Ser Gly Pro Val Val
 175 180 185
 ctc atg gct gca tct ttc atg aat gct gtt ttt gat cgt ott cct atg 747
 Leu Met Ala Ala Ser Phe Met Asn Ala Val Phe Asp Arg Leu Pro Met
 190 195 200
 gat gat gat gaa gct gcc tct atg cag aac cag cag tac tac cag aat 795
 Asp Asp Asp Glu Ala Ala Ser Met Gln Asn Gln Gln Tyr Tyr Gln Asn
 205 210 215
 gga aga tcc cgt cct tta gat gac att cat gga ctg cct caa aat ctg 843
 Gly Arg Ser Arg Pro Leu Asp Asp Ile His Gly Leu Pro Gln Asn Leu
 220 225 230
 ctc act aat gga aac tcg gct tct gat atc tac tct tgg ggg cct tgg 891
 Leu Thr Asn Gly Asn Ser Ala Ser Asp Ile Tyr Ser Trp Gly Pro Trp
 235 240 245 250
 aat caa aga taa atgtgtctgt aggttgagag agaaccgtaa gtctg 938
 Asn Gln Arg

<210> 258 <211> 253 <212> PRT <213> Arabidopsis thaliana <400> 258

Met Ala Gly Gly Thr Ala Leu Thr Pro Thr Ser Val Gly Ser Lys Ser
1 5 10 15

Val Pro Met Arg Asn His Glu Ala Thr Glu Arg Gly Asn Thr Asn Asn
20 25 30

Asn Leu Arg Ala Leu Pro Lys Ala Val Gln Pro Val Ser Ser Ile Glu

35

40

45

Gly Glu Met Ala Lys Arg Pro Arg Gly Arg Pro Ala Gly Ser Lys Asn
50 55 60

Lys Pro Lys Pro Pro Ile Ile Val Thr His Asp Ser Pro Asn Ser Leu
65 70 75 80

Arg Ala Asn Ala Val Glu Ile Ser Ser Gly Cys Asp Ile Cys Glu Thr
85 90 95

Leu Ser Asp Phe Ala Arg Arg Lys Gln Arg Gly Leu Cys Ile Leu Ser
100 105 110

Ala Asn Gly Cys Val Thr Asn Val Thr Leu Arg Gln Pro Ala Ser Ser
115 120 125

Gly Ala Ile Val Thr Leu His Gly Arg Tyr Glu Ile Leu Ser Leu Leu
130 135 140

Gly Ser Ile Leu Pro Pro Pro Ala Pro Leu Gly Ile Thr Gly Leu Thr
145 150 155 160

Ile Tyr Leu Ala Gly Pro Gln Gly Gln Val Val Gly Gly Gly Val Val
165 170 175

Gly Gly Leu Ile Ala Ser Gly Pro Val Val Leu Met Ala Ala Ser Phe
180 185 190

Met Asn Ala Val Phe Asp Arg Leu Pro Met Asp Asp Asp Glu Ala Ala
195 200 205

Ser Met Gln Asn Gln Gln Tyr Tyr Gln Asn Gly Arg Ser Arg Pro Leu
210 215 220

Asp Asp Ile His Gly Leu Pro Gln Asn Leu Leu Thr Asn Gly Asn Ser
225 230 235 240

Ala Ser Asp Ile Tyr Ser Trp Gly Pro Trp Asn Gln Arg
245 250

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<222> (1)..(1221) <223> G1706

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Met Lys Asn Lys Thr Gln Lys Tyr Ile Asp Lys Lys Thr Trp Asn Tyr
1 5 10 15

ata aat atg gac cac cat cac gcc ttt gca tca cat tca tac aac tca 96
Ile Asn Met Asp His His His Ala Phe Ala Ser His Ser Tyr Asn Ser
20 25 30

gtt ttc ata agc aaa aag gca atg gaa gag tca cga tcc tac aga aag 144
Val Phe Ile Ser Lys Lys Ala Met Glu Glu Ser Arg Ser Tyr Arg Lys
35 40 45

gag agg aag cag aca aag aag aaa acg ggt cgt ggg tca gga tcc agg 192
Glu Arg Lys Gln Thr Lys Lys Lys Thr Gly Arg Gly Ser Gly Ser Arg
50 55 60

tcg atc cat ata aag atg agg aag ctt cga gtg ctt ata ccg ggt gga 240
Ser Ile His Ile Lys Met Arg Lys Leu Arg Val Leu Ile Pro Gly Gly
65 70 75 80

cga aga ttg aac caa ccg gat ctg ctt cta tca aag act gct gat tat 288
Arg Arg Leu Asn Gln Pro Asp Leu Leu Leu Ser Lys Thr Ala Asp Tyr
85 90 95

att atg cat ttg gag ttg agg att agc att cta cat ttg ttg gtc aga 336
Ile Met His Leu Glu Leu Arg Ile Ser Ile Leu His Leu Leu Val Arg
100 105 110

tat tac tta aag aag aaa aga tca aac ctt tcg tca tca cca aac gaa 384
Tyr Tyr Leu Lys Lys Lys Arg Ser Asn Leu Ser Ser Pro Asn Glu
115 120 125

tct aat caa aac cca gaa ttt tcc gac tcc gat act tac caa aga cag 432
Ser Asn Gln Asn Pro Glu Phe Ser Asp Ser Asp Thr Tyr Gln Arg Gln
130 135 140

ctt caa cag ctc ttt cat ctc cat gat tca ggt cta gat caa gct tta 480
Leu Gln Gln Leu Phe His Leu His Asp Ser Gly Leu Asp Gln Ala Leu
145 150 155 160

atc gat gct ctt cct gtg ttt ctt tac aaa gag atc aaa ggt acg aaa 528
Ile Asp Ala Leu Pro Val Phe Leu Tyr Lys Glu Ile Lys Gly Thr Lys
165 170 175

gag cct ttt gat tgt gca gtg tgt ctc tgt gaa ttc tcg gaa gat gat 576
Glu Pro Phe Asp Cys Ala Val Cys Leu Cys Glu Phe Ser Glu Asp Asp
180 185 190

aag ctt aga ttg ctt ccg aat tgt agt cac gct ttt cac ata gat tgt 624
Lys Leu Arg Leu Leu Pro Asn Cys Ser His Ala Phe His Ile Asp Cys
195 200 205

atc gat act tgg ctt ctc tcg aat tcg act tgt cca ctt tgt aga gga 672
Ile Asp Thr Trp Leu Leu Ser Asn Ser Thr Cys Pro Leu Cys Arg Gly
210 215 220

acc ctt ttc tct tta ggt cat caa ttt gaa tac cct gat ttc aat ttc 720
Thr Leu Phe Ser Leu Gly His Gln Phe Glu Tyr Pro Asp Phe Asn Phe
225 230 235 240

ggg ttt ttc gcc gga gat gat gga gga gga gtt agg gtt tct ccg 768
Gly Phe Phe Ala Gly Asp Asp Gly Gly Gly Val Arg Val Ser Pro
245 250 255

gtt cag aaa cca gct gag aat gag att ggg aag aga gtg ttt tca gtg 816
Val Gln Lys Pro Ala Glu Asn Glu Ile Gly Lys Arg Val Phe Ser Val
260 265 270

agg ctt ggt aag ttt agg agc agt aat att gtc aac aat ggt gaa gta 864
Arg Leu Gly Lys Phe Arg Ser Ser Asn Ile Val Asn Asn Gly Glu Val
275 280 285

gta gta gga gga gga gga gag aca agt agt agt agt ctt gat aat aga 912
Val Val Gly Gly Gly Gly Glu Thr Ser Ser Ser Ser Leu Asp Asn Arg
290 295 300

aga tgt ttc tca atg ggg tct tat cag tac ata gtg gct gaa tca gat 960
Arg Cys Phe Ser Met Gly Ser Tyr Gln Tyr Ile Val Ala Glu Ser Asp
305 310 315 320

ctg gtt gtt gct ttg tgt cct aat aat gaa gga ttg aag aat aat aag 1008
Leu Val Val Ala Leu Cys Pro Asn Asn Glu Gly Leu Lys Asn Asn Lys
325 330 335

gat gtt gaa ggg aag aag att aat atg aga agt aaa ggt gag agc ttt 1056
Asp Val Glu Gly Lys Lys Ile Asn Met Arg Ser Lys Gly Glu Ser Phe
340 345 350

tct gtg tca aag att tgg caa tgg tct aat aag aga tca aag ttt cct 1104
Ser Val Ser Lys Ile Trp Gln Trp Ser Asn Lys Arg Ser Lys Phe Pro
355 360 365

aat aat cat cca tca gag act aat ctt gtg gtt ggt ggt tct tct tct 1152
Asn Asn His Pro Ser Glu Thr Asn Leu Val Val Gly Gly Ser Ser Ser
370 375 380

tct tct tct tat gtt tgt tct gga tct gat ggg tta tca ttg aat gga 1200
Ser Ser Ser Tyr Val Cys Ser Gly Ser Asp Gly Leu Ser Leu Asn Gly
385 390 395 400

agg aga ttt cag ggt cca tga 1221
Arg Arg Phe Gln Gly Pro
405

<210> 260 <211> 406 <212> PRT <213> Arabidopsis thaliana <400> 260

Met Lys Asn Lys Thr Gln Lys Tyr Ile Asp Lys Lys Thr Trp Asn Tyr
1 5 10 15

Ile Asn Met Asp His His His Ala Phe Ala Ser His Ser Tyr Asn Ser

20

25

30

Val Phe Ile Ser Lys Lys Ala Met Glu Glu Ser Arg Ser Tyr Arg Lys
35 40 45

Glu Arg Lys Gln Thr Lys Lys Lys Thr Gly Arg Gly Ser Gly Ser Arg
50 55 60

Ser Ile His Ile Lys Met Arg Lys Leu Arg Val Leu Ile Pro Gly Gly
65 70 75 80

Arg Arg Leu Asn Gln Pro Asp Leu Leu Leu Ser Lys Thr Ala Asp Tyr
85 90 95

Ile Met His Leu Glu Leu Arg Ile Ser Ile Leu His Leu Leu Val Arg
100 105 110

Tyr Tyr Leu Lys Lys Lys Arg Ser Asn Leu Ser Ser Ser Pro Asn Glu
115 120 125

Ser Asn Gln Asn Pro Glu Phe Ser Asp Ser Asp Thr Tyr Gln Arg Gln
130 135 140

Leu Gln Gln Leu Phe His Leu His Asp Ser Gly Leu Asp Gln Ala Leu
145 150 155 160

Ile Asp Ala Leu Pro Val Phe Leu Tyr Lys Glu Ile Lys Gly Thr Lys
165 170 175

Glu Pro Phe Asp Cys Ala Val Cys Leu Cys Glu Phe Ser Glu Asp Asp
180 185 190

Lys Leu Arg Leu Leu Pro Asn Cys Ser His Ala Phe His Ile Asp Cys
195 200 205

Ile Asp Thr Trp Leu Leu Ser Asn Ser Thr Cys Pro Leu Cys Arg Gly
210 215 220

Thr Leu Phe Ser Leu Gly His Gln Phe Glu Tyr Pro Asp Phe Asn Phe
225 230 235 240

Gly Phe Phe Ala Gly Asp Asp Gly Gly Gly Gly Val Arg Val Ser Pro
245 250 255

Val Gln Lys Pro Ala Glu Asn Glu Ile Gly Lys Arg Val Phe Ser Val
260 265 270

Arg Leu Gly Lys Phe Arg Ser Ser Asn Ile Val Asn Asn Gly Glu Val
275 280 285

Val Val Gly Gly Gly Gly Glu Thr Ser Ser Ser Ser Leu Asp Asn Arg
290 295 300

Arg Cys Phe Ser Met Gly Ser Tyr Gln Tyr Ile Val Ala Glu Ser Asp
305 310 315 320

Leu Val Val Ala Leu Cys Pro Asn Asn Glu Gly Leu Lys Asn Asn Lys
325 330 335

Asp Val Glu Gly Lys Lys Ile Asn Met Arg Ser Lys Gly Glu Ser Phe
340 345 350

Ser Val Ser Lys Ile Trp Gln Trp Ser Asn Lys Arg Ser Lys Phe Pro
355 360 365

Asn Asn His Pro Ser Glu Thr Asn Leu Val Val Gly Gly Ser Ser Ser
370 375 380

Ser Ser Ser Tyr Val Cys Ser Gly Ser Asp Gly Leu Ser Leu Asn Gly
385 390 395 400

Arg Arg Phe Gln Gly Pro
405

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<222> (32)..(1216) <223> G1766

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Met Asn Ser Phe Ser Gln Val
1 5

cct cct ggc ttc aga ttt cat cct act gat gaa gaa ctt gta gac tac 100
Pro Pro Gly Phe Arg Phe His Pro Thr Asp Glu Glu Val Asp Tyr
10 15 20

tac ttg agg aaa aaa gtt gca tca aag aga ata gaa atc gat atc atc 148
Tyr Leu Arg Lys Lys Val Ala Ser Lys Arg Ile Glu Ile Asp Ile Ile
25 30 35

aag gat gtt gat ctt tac aag att gag cca tgt gat ctt caa gag tta 196
 Lys Asp Val Asp Leu Tyr Lys Ile Glu Pro Cys Asp Leu Gln Glu Leu
 40 45 50 55
 tgc aag ata gga aac gaa gag cag agc gaa tgg tac ttc ttt agt cat 244
 Cys Lys Ile Gly Asn Glu Glu Gln Ser Glu Trp Tyr Phe Phe Ser His
 60 65 70
 aaa gac aag aag tat ccc acg gga act cga acc aat aga gcc acg aaa 292
 Lys Asp Lys Lys Tyr Pro Thr Gly Thr Arg Thr Asn Arg Ala Thr Lys
 75 80 85
 gca gga ttt tgg aaa gcc act gga aga gac aag gct ata tat ata aga 340
 Ala Gly Phe Trp Lys Ala Thr Gly Arg Asp Lys Ala Ile Tyr Ile Arg
 90 95 100
 cat agt ctt atc ggt atg agg aaa aca ctt gtg ttt tac aaa gga aga 388
 His Ser Leu Ile Gly Met Arg Lys Thr Leu Val Phe Tyr Lys Gly Arg
 105 110 115
 gcc cca aat ggt cag aaa tcc gat tgg atc atg cac gaa tat cgc tta 436
 Ala Pro Asn Gly Gln Lys Ser Asp Trp Ile Met His Glu Tyr Arg Leu
 120 125 130 135
 gaa aca agt gaa aat gga acc cct cag gaa gaa gga tgg gta gta tgt 484
 Glu Thr Ser Glu Asn Gly Thr Pro Gln Glu Glu Gly Trp Val Val Cys
 140 145 150
 agg gta ttc aag aag aaa ttg gca gcg aca gtg agg aaa atg gga gat 532
 Arg Val Phe Lys Lys Lys Leu Ala Ala Thr Val Arg Lys Met Gly Asp
 155 160 165
 tac cat tca tca cca tcg cag cat tgg tac gat gat cag ctc tct ttt 580
 Tyr His Ser Ser Pro Ser Gln His Trp Tyr Asp Asp Gln Leu Ser Phe
 170 175 180
 atg gcc tcc gag atc att tct agt tct cca cga cag ttt ctt ccc aat 628
 Met Ala Ser Glu Ile Ile Ser Ser Ser Pro Arg Gln Phe Leu Pro Asn
 185 190 195
 cat cat tat aac cgc cac cat cac cag cag aca ttg cct tgt ggc ctc 676
 His His Tyr Asn Arg His His His Gln Gln Thr Leu Pro Cys Gly Leu
 200 205 210 215
 aat gca ttc aac aac aac aat cct aac ttg caa tgc aag caa gag ctc 724
 Asn Ala Phe Asn Asn Asn Asn Pro Asn Leu Gln Cys Lys Gln Glu Leu
 220 225 230
 gag tta cat tac aat caa atg gta caa cat caa caa caa aac cat cat 772
 Glu Leu His Tyr Asn Gln Met Val Gln His Gln Gln Asn His His
 235 240 245
 ctt cgt gaa tct atg ttt ctc cag ctt cct cag ctc gaa agc cct acc 820
 Leu Arg Glu Ser Met Phe Leu Gln Leu Pro Gln Leu Glu Ser Pro Thr
 250 255 260

agt aat tgc aat tct gac aac aac aat aac aca aga aat att agt aac 868
 Ser Asn Cys Asn Ser Asp Asn Asn Asn Thr Arg Asn Ile Ser Asn
 265 270 275

ttg cag aaa tca tca aat ata tct cat gag gaa caa ttg caa caa ggg 916
 Leu Gln Lys Ser Ser Asn Ile Ser His Glu Glu Gln Leu Gln Gln Gly
 280 285 290 295

aat caa agt ttc agc tct ctg tat tac gat caa gga gta gag caa atg 964
 Asn Gln Ser Phe Ser Ser Leu Tyr Tyr Asp Gln Gly Val Glu Gln Met
 300 305 310

act act gac tgg aga gtt ctc gat aaa ttt gtt gct tca cag ctt agc 1012
 Thr Thr Asp Trp Arg Val Leu Asp Lys Phe Val Ala Ser Gln Leu Ser
 315 320 325

aat gat gaa gag gct gca gcc gtg gtt tct tct tct tct cat caa aac 1060
 Asn Asp Glu Glu Ala Ala Val Val Ser Ser Ser Ser His Gln Asn
 330 335 340

aac gtc aag att gac acg aga aac acg ggt tat cat gtg ata gat gag 1108
 Asn Val Lys Ile Asp Thr Arg Asn Thr Gly Tyr His Val Ile Asp Glu
 345 350 355

gga ata aat ttg ccg gag aat gat tct gaa agg gtt gtt gaa atg gga 1156
 Gly Ile Asn Leu Pro Glu Asn Asp Ser Glu Arg Val Val Glu Met Gly
 360 365 370 375

gaa gag tat tca aat gct cat gct gct tct act tct tca agt tgt cag 1204
 Glu Glu Tyr Ser Asn Ala His Ala Ala Ser Thr Ser Ser Ser Cys Gln
 380 385 390

att gat ctc tag aaatagtgat agagagatga aaaagatgca aggtgaatat 1256
 Ile Asp Leu

atatgaaaat acatgcacac tagtggttatt tatacttaaa gatggaaggg gaaaaacaag 1316

gagttatttc ctggatttat ggagggttttg tacataataa aaacctacaa ccatatggta 1376

ttttcttttg aaaaaaaaaa aaaaaaaaaa aaaa 1410

<210> 262 <211> 394 <212> PRT <213> Arabidopsis thaliana <400> 262

Met Asn Ser Phe Ser Gln Val Pro Pro Gly Phe Arg Phe His Pro Thr
 1 5 10 15

Asp Glu Glu Leu Val Asp Tyr Tyr Leu Arg Lys Lys Val Ala Ser Lys
 20 25 30

Arg Ile Glu Ile Asp Ile Ile Lys Asp Val Asp Leu Tyr Lys Ile Glu
 35 40 45

Pro Cys Asp Leu Gln Glu Leu Cys Lys Ile Gly Asn Glu Glu Gln Ser
50 55 60

Glu Trp Tyr Phe Phe Ser His Lys Asp Lys Lys Tyr Pro Thr Gly Thr
65 70 75 80

Arg Thr Asn Arg Ala Thr Lys Ala Gly Phe Trp Lys Ala Thr Gly Arg
85 90 95

Asp Lys Ala Ile Tyr Ile Arg His Ser Leu Ile Gly Met Arg Lys Thr
100 105 110

Leu Val Phe Tyr Lys Gly Arg Ala Pro Asn Gly Gln Lys Ser Asp Trp
115 120 125

Ile Met His Glu Tyr Arg Leu Glu Thr Ser Glu Asn Gly Thr Pro Gln
130 135 140

Glu Glu Gly Trp Val Val Cys Arg Val Phe Lys Lys Lys Leu Ala Ala
145 150 155 160

Thr Val Arg Lys Met Gly Asp Tyr His Ser Ser Pro Ser Gln His Trp
165 170 175

Tyr Asp Asp Gln Leu Ser Phe Met Ala Ser Glu Ile Ile Ser Ser Ser
180 185 190

Pro Arg Gln Phe Leu Pro Asn His His Tyr Asn Arg His His His Gln
195 200 205

Gln Thr Leu Pro Cys Gly Leu Asn Ala Phe Asn Asn Asn Pro Asn
210 215 220

Leu Gln Cys Lys Gln Glu Leu Glu Leu His Tyr Asn Gln Met Val Gln
225 230 235 240

His Gln Gln Gln Asn His His Leu Arg Glu Ser Met Phe Leu Gln Leu
245 250 255

Pro Gln Leu Glu Ser Pro Thr Ser Asn Cys Asn Ser Asp Asn Asn Asn
260 265 270

Asn Thr Arg Asn Ile Ser Asn Leu Gln Lys Ser Ser Asn Ile Ser His

275

280

285

Glu Glu Gln Leu Gln Gln Gly Asn Gln Ser Phe Ser Ser Leu Tyr Tyr
290 295 300

Asp Gln Gly Val Glu Gln Met Thr Thr Asp Trp Arg Val Leu Asp Lys
305 310 315 320

Phe Val Ala Ser Gln Leu Ser Asn Asp Glu Glu Ala Ala Ala Val Val
325 330 335

Ser Ser Ser Ser His Gln Asn Asn Val Lys Ile Asp Thr Arg Asn Thr
340 345 350

Gly Tyr His Val Ile Asp Glu Gly Ile Asn Leu Pro Glu Asn Asp Ser
355 360 365

Glu Arg Val Val Glu Met Gly Glu Glu Tyr Ser Asn Ala His Ala Ala
370 375 380

Ser Thr Ser Ser Ser Cys Gln Ile Asp Leu
385 390

<210> 263 <211> 927 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(927) <223> G1782

<400> 263
atg caa gtg ttt caa agg aaa gaa gat tca tct tgg gga aac tca atg 48
Met Gln Val Phe Gln Arg Lys Glu Asp Ser Ser Trp Gly Asn Ser Met
1 5 10 15

cct aca aca aat tca aat att caa gga tct gaa tct ttc agc ttg act 96
Pro Thr Thr Asn Ser Asn Ile Gln Gly Ser Glu Ser Phe Ser Leu Thr
20 25 30

aag gat atg ata atg tct aca aca caa tta ccc gcg atg aaa cat tcg 144
Lys Asp Met Ile Met Ser Thr Thr Gln Leu Pro Ala Met Lys His Ser
35 40 45

ggc ttg cag ctg caa aat caa gat tca acc tca tca caa tct act gaa 192
Gly Leu Gln Leu Gln Asn Gln Asp Ser Thr Ser Ser Gln Ser Thr Glu
50 55 60

gaa gaa tca ggc ggc ggt gaa gtt gca agc ttt gga gaa tat aag cgt 240
Glu Glu Ser Gly Gly Gly Glu Val Ala Ser Phe Gly Glu Tyr Lys Arg
65 70 75 80

tat gga tgc agc att gtt aat aac aat ctc tca ggt tac atc gaa aac 288
Tyr Gly Cys Ser Ile Val Asn Asn Asn Leu Ser Gly Tyr Ile Glu Asn

	85	90	95	
ttg gga aag cct att gaa aat tat act aag tca att act acc tgg tgg				336
Leu Gly Lys Pro Ile Glu Asn Tyr Thr Lys Ser Ile Thr Ser Ser	100	105	110	
atg gtg tct caa gac tct gtg ttt cct gct cct act tct ggt caa ata				384
Met Val Ser Gln Asp Ser Val Phe Pro Ala Pro Thr Ser Gly Gln Ile	115	120	125	
tct tgg tct ctt caa tgt gct gaa acg tca cat ttc aat ggt ttc ttg				432
Ser Trp Ser Leu Gln Cys Ala Glu Thr Ser His Phe Asn Gly Phe Leu	130	135	140	
gct cct gaa tat gca tca aca cca acg gcg ctg cca cat tta gag atg				480
Ala Pro Glu Tyr Ala Ser Thr Pro Thr Ala Leu Pro His Leu Glu Met	145	150	155	160
atg ggt ttg gtt tct tca aga gtg cca ttg cct cat cac att caa gag				528
Met Gly Leu Val Ser Ser Arg Val Pro Leu Pro His His Ile Gln Glu	165	170	175	
aat gaa cca ata ttt gtc aat gcg aaa cag tat cat gcg att ctc cgt				576
Asn Glu Pro Ile Phe Val Asn Ala Lys Gln Tyr His Ala Ile Leu Arg	180	185	190	
cgc agg aag cac cgt gct aaa ctc gaa gct cag aac aaa ctc atc aaa				624
Arg Arg Lys His Arg Ala Lys Leu Glu Ala Gln Asn Lys Leu Ile Lys	195	200	205	
tgc cgt aaa cgg tac ctt cat gag tct cgc cat ctt cat gct tta aag				672
Cys Arg Lys Pro Tyr Leu His Glu Ser Arg His Leu His Ala Leu Lys	210	215	220	
aga gct aga ggc tcc ggt gga cgt ttc ctc aat aca aag aag ctt caa				720
Arg Ala Arg Gly Ser Gly Gly Arg Phe Leu Asn Thr Lys Lys Leu Gln	225	230	235	240
gaa tca tca aac tca ctg tgt tct tct caa atg gca aat gga caa aat				768
Glu Ser Ser Asn Ser Leu Cys Ser Ser Gln Met Ala Asn Gly Gln Asn	245	250	255	
ttc tct atg agc cct cac ggt ggt gga atc ggg tct agt tgg				816
Phe Ser Met Ser Pro His Gly Gly Ser Gly Ile Gly Ser Ser Ser	260	265	270	
atc tca cgg agc tcc aat tca aac tgt atc aac atg ttc caa aac cgg				864
Ile Ser Pro Ser Ser Asn Ser Asn Cys Ile Asn Met Phe Gln Asn Pro	275	280	285	
cag ttc aga ttc tca ggt tat cgg tca aca cac cat gcc tca gct ctc				912
Gln Phe Arg Phe Ser Gly Tyr Pro Ser Thr His His Ala Ser Ala Leu	290	295	300	
atg tca ggg act tga				927
Met Ser Gly Thr				
305				

<210> 264 <211> 308 <212> PRT <213> Arabidopsis thaliana <400> 264

Met Gln Val Phe Gln Arg Lys Glu Asp Ser Ser Trp Gly Asn Ser Met
1 5 10 15

Pro Thr Thr Asn Ser Asn Ile Gln Gly Ser Glu Ser Phe Ser Leu Thr
20 25 30

Lys Asp Met Ile Met Ser Thr Thr Gln Leu Pro Ala Met Lys His Ser
35 40 45

Gly Leu Gln Leu Gln Asn Gln Asp Ser Thr Ser Ser Gln Ser Thr Glu
50 55 60

Glu Glu Ser Gly Gly Gly Glu Val Ala Ser Phe Gly Glu Tyr Lys Arg
65 70 75 80

Tyr Gly Cys Ser Ile Val Asn Asn Asn Leu Ser Gly Tyr Ile Glu Asn
85 90 95

Leu Gly Lys Pro Ile Glu Asn Tyr Thr Lys Ser Ile Thr Thr Ser Ser
100 105 110

Met Val Ser Gln Asp Ser Val Phe Pro Ala Pro Thr Ser Gly Gln Ile
115 120 125

Ser Trp Ser Leu Gln Cys Ala Glu Thr Ser His Phe Asn Gly Phe Leu
130 135 140

Ala Pro Glu Tyr Ala Ser Thr Pro Thr Ala Leu Pro His Leu Glu Met
145 150 155 160

Met Gly Leu Val Ser Ser Arg Val Pro Leu Pro His His Ile Gln Glu
165 170 175

Asn Glu Pro Ile Phe Val Asn Ala Lys Gln Tyr His Ala Ile Leu Arg
180 185 190

Arg Arg Lys His Arg Ala Lys Leu Glu Ala Gln Asn Lys Leu Ile Lys
195 200 205

Cys Arg Lys Pro Tyr Leu His Glu Ser Arg His Leu His Ala Leu Lys

210

215

220

Arg Ala Arg Gly Ser Gly Gly Arg Phe Leu Asn Thr Lys Lys Leu Gln
225 230 235 240

Glu Ser Ser Asn Ser Leu Cys Ser Ser Gln Met Ala Asn Gly Gln Asn
245 250 255

Phe Ser Met Ser Pro His Gly Gly Gly Ser Gly Ile Gly Ser Ser Ser
260 265 270

Ile Ser Pro Ser Ser Asn Ser Asn Cys Ile Asn Met Phe Gln Asn Pro
275 280 285

Gln Phe Arg Phe Ser Gly Tyr Pro Ser Thr His His Ala Ser Ala Leu
290 295 300

Met Ser Gly Thr
305

<210> 265 <211> 450 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (27)..(422) <223> G1795

<400> 265
acaaacacgc aaaaagtcac taatat atg gat caa gga ggt cga ggt gtc ggt 53
Met Asp Gln Gly Gly Arg Gly Val Gly
1 5

gcc gag cat gga aag tac cgg gga gtt cgg aga cga cct tgg gga aaa 101
Ala Glu His Gly Lys Tyr Arg Gly Val Arg Arg Arg Pro Trp Gly Lys
10 15 20 25

tat gca gca gag ata cga gat tcg agg aag cac ggt gaa cgt gtg tgg 149
Tyr Ala Ala Glu Ile Arg Asp Ser Arg Lys His Gly Glu Arg Val Trp
30 35 40

ctt gga acg ttc gat acg gca gag gaa gcg gct aga gcc tat gac caa 197
Leu Gly Thr Phe Asp Thr Ala Glu Glu Ala Ala Arg Ala Tyr Asp Gln
45 50 55

gct gct tac tcc atg aga ggc caa gca gca atc ctt aac ttc cct cat 245
Ala Ala Tyr Ser Met Arg Gly Gln Ala Ala Ile Leu Asn Phe Pro His
60 65 70

gag tat aac atg ggg agt ggt gtc tct tct tcc acc gcc atg gct gga 293
Glu Tyr Asn Met Gly Ser Gly Val Ser Ser Ser Thr Ala Met Ala Gly
75 80 85

tct tcc tcc gcc tcc gcc tcc gct tct tct tct tct agg caa gtt ttt 341
Ser Ser Ser Ala Ser Ala Ser Ala Ser Ser Ser Ser Arg Gln Val Phe

90 95 100 105

gaa ttt gag tac ttg gat gat agt gtt ttg gag gag ctc ctt gag gaa 389
 Glu Phe Glu Tyr Leu Asp Asp Ser Val Leu Glu Glu Leu Leu Glu Glu
 110 115 120

gga gag aaa cct aac aag ggc aag aag aaa tga gcgagatata attcatgatt 442
 Gly Glu Lys Pro Asn Lys Gly Lys Lys Lys
 125 130

atttctaa 450

<210> 266 <211> 131 <212> PRT <213> Arabidopsis thaliana <400> 266

Met Asp Gln Gly Gly Arg Gly Val Gly Ala Glu His Gly Lys Tyr Arg
 1 5 10 15

Gly Val Arg Arg Arg Pro Trp Gly Lys Tyr Ala Ala Glu Ile Arg Asp
 20 25 30

Ser Arg Lys His Gly Glu Arg Val Trp Leu Gly Thr Phe Asp Thr Ala
 35 40 45

Glu Glu Ala Ala Arg Ala Tyr Asp Gln Ala Ala Tyr Ser Met Arg Gly
 50 55 60

Gln Ala Ala Ile Leu Asn Phe Pro His Glu Tyr Asn Met Gly Ser Gly
 65 70 75 80

Val Ser Ser Ser Thr Ala Met Ala Gly Ser Ser Ser Ala Ser Ala Ser
 85 90 95

Ala Ser Ser Ser Ser Arg Gln Val Phe Glu Phe Glu Tyr Leu Asp Asp
 100 105 110

Ser Val Leu Glu Glu Leu Leu Glu Glu Gly Glu Lys Pro Asn Lys Gly
 115 120 125

Lys Lys Lys
 130

<210> 267 <211> 1716 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
 <222> (169)..(1497) <223> G1804

<400> 267
 tatctctctc tttctcaaaa cctttcagtc aaaattctcc gccggtcttt aaactatgtg 60

aaggaggaga acctccataa caagaagcgg attctctcag ttttcggcgg goggaggaaac 120
 acaaagccac cggttttttag acacacagat ttcattttca gttgttaa atg gta act 177
 Met Val Thr
 1
 aga gaa acg aag ttg acg tca gag cga gaa gta gag tgc tcc atg gcg 225
 Arg Glu Thr Lys Leu Thr Ser Glu Arg Glu Val Glu Ser Ser Met Ala
 5 10 15
 caa gcg aga cat aat gga gga ggt ggt ggt gag aat cat ccg ttt act 273
 Gln Ala Arg His Asn Gly Gly Gly Gly Glu Asn His Pro Phe Thr
 20 25 30 35
 tct ttg gga aga caa tcc tct atc tac tca ttg acc ctt gac gag ttc 321
 Ser Leu Gly Arg Gln Ser Ser Ile Tyr Ser Leu Thr Leu Asp Glu Phe
 40 45 50
 caa cat gct tta tgt gag aac ggc aag aac ttt ggg tcc atg aac atg 369
 Gln His Ala Leu Cys Glu Asn Gly Lys Asn Phe Gly Ser Met Asn Met
 55 60 65
 gac gag ttt ctt gtc tct att tgg aac gca gag gag aat aat aac aat 417
 Asp Glu Phe Leu Val Ser Ile Trp Asn Ala Glu Glu Asn Asn Asn
 70 75 80
 caa caa caa gca gca gca gct gca ggt tca cat tct gtt ccg gct aat 465
 Gln Gln Gln Ala Ala Ala Ala Ala Gly Ser His Ser Val Pro Ala Asn
 85 90 95
 cac aat ggt ttc aac aac aac aat aac aat gga ggc gag ggt ggt gtt 513
 His Asn Gly Phe Asn Asn Asn Asn Asn Asn Gly Gly Glu Gly Gly Val
 100 105 110 115
 ggt gtc ttt agt ggt ggt tct aga ggc aac gaa gat gct aac aat aag 561
 Gly Val Phe Ser Gly Gly Ser Arg Gly Asn Glu Asp Ala Asn Asn Lys
 120 125 130
 aga ggg ata gcg aac gag tct agt ctt cct cga caa ggc tct ttg aca 609
 Arg Gly Ile Ala Asn Glu Ser Ser Leu Pro Arg Gln Gly Ser Leu Thr
 135 140 145
 ctt cca gct ccg ctt tgt agg aag act gtt gat gag gtt tgg tct gag 657
 Leu Pro Ala Pro Leu Cys Arg Lys Thr Val Asp Glu Val Trp Ser Glu
 150 155 160
 ata cat aga ggt ggt ggt agc ggt aat gga gga gac agc aat gga cgt 705
 Ile His Arg Gly Gly Gly Ser Gly Asn Gly Gly Asp Ser Asn Gly Arg
 165 170 175
 agt agt agt agt aat gga cag aac aat gct cag aac ggc ggt gag act 753
 Ser Ser Ser Ser Asn Gly Gln Asn Asn Ala Gln Asn Gly Gly Glu Thr
 180 185 190 195
 gcg gct aga caa ccg act ttt gga gag atg aca ctt gag gat ttc ttg 801
 Ala Ala Arg Gln Pro Thr Phe Gly Glu Met Thr Leu Glu Asp Phe Leu
 200 205 210

gtg aag gct ggt gtg gtt aga gaa cat ccc act aat cct aaa cct aat	849
Val Lys Ala Gly Val Val Arg Glu His Pro Thr Asn Pro Lys Pro Asn	
215 220 225	
cca aac ccg aac caa aac caa aac ccg tct agt gta ata ccc gca gct	897
Pro Asn Pro Asn Gln Asn Gln Asn Pro Ser Ser Val Ile Pro Ala Ala	
230 235 240	
gca cag caa cag ctt tat ggt gtg ttt caa gga acc ggt gat cct tca	945
Ala Gln Gln Gln Leu Tyr Gly Val Phe Gln Gly Thr Gly Asp Pro Ser	
245 250 255	
ttc ccg ggt caa gct atg ggt gtg ggt gac cca tca ggt tat gct aaa	993
Phe Pro Gly Gln Ala Met Gly Val Gly Asp Pro Ser Gly Tyr Ala Lys	
260 265 270 275	
agg aca gga gga gga ggg tat cag cag gcg cca cca gtt cag gca ggt	1041
Arg Thr Gly Gly Gly Tyr Gln Gln Ala Pro Pro Val Gln Ala Gly	
280 285 290	
gtt tgc tat gga ggt ggc gtt ggg ttt gga gcg ggt gga cag caa atg	1089
Val Cys Tyr Gly Gly Gly Val Gly Phe Gly Ala Gly Gly Gln Met	
295 300 305	
gga atg gtt gga ccg tta agc ccg gtg tct tca gat gga tta gga cat	1137
Gly Met Val Gly Pro Leu Ser Pro Val Ser Ser Asp Gly Leu Gly His	
310 315 320	
gga caa gtg gat aac ata gga ggt cag tat gga gta gat atg gga ggg	1185
Gly Gln Val Asp Asn Ile Gly Gly Gln Tyr Gly Val Asp Met Gly Gly	
325 330 335	
cta agg gga agg aaa aga gta gtg gat ggt cca gtg gag aaa gta gtg	1233
Leu Arg Gly Arg Lys Arg Val Val Asp Gly Pro Val Glu Lys Val Val	
340 345 350 355	
gag aga aga cag agg agg atg atc aag aac cgc gag tct gct gct aga	1281
Glu Arg Arg Gln Arg Arg Met Ile Lys Asn Arg Glu Ser Ala Ala Arg	
360 365 370	
tct aga gca aga aaa caa gca tat aca gtg gaa ttg gaa gct gaa ctt	1329
Ser Arg Ala Arg Lys Gln Ala Tyr Thr Val Glu Leu Glu Ala Glu Leu	
375 380 385	
aac cag ttg aaa gaa gag aat gcg cag cta aaa cat gca ttg gcg gag	1377
Asn Gln Leu Lys Glu Glu Asn Ala Gln Leu Lys His Ala Leu Ala Glu	
390 395 400	
ttg gag agg aag agg aag caa cag tat ttt gag agt ttg aag tca agg	1425
Leu Glu Arg Lys Arg Lys Gln Gln Tyr Phe Glu Ser Leu Lys Ser Arg	
405 410 415	
gca caa ccg aaa ttg ccg aaa tcg aac ggg aga ttg ccg aca ttg atg	1473
Ala Gln Pro Lys Leu Pro Lys Ser Asn Gly Arg Leu Arg Thr Leu Met	
420 425 430 435	

agg aac ccg agt tgt cca ctc taa acaacaata ggaagatgga gaagaagtgc 1527
 Arg Asn Pro Ser Cys Pro Leu
 440

gagacagaac gagggaaaaa ctgatgattt tctacgttgt tgttttgtct ttgaggaatg 1587
 aggttataga atctttatata ttgatgttt tctgtgttg taggaggaac accatctgat 1647
 ctgctttact agtgttccct gtgaacaaag aaagtgattc tgtgtttcaa catcatcaat 1707
 ctttgga 1716

<210> 268 <211> 442 <212> PRT <213> Arabidopsis thaliana <400> 268

Met Val Thr Arg Glu Thr Lys Leu Thr Ser Glu Arg Glu Val Glu Ser
 1 5 10 15

Ser Met Ala Gln Ala Arg His Asn Gly Gly Gly Gly Gly Glu Asn His
 20 25 30

Pro Phe Thr Ser Leu Gly Arg Gln Ser Ser Ile Tyr Ser Leu Thr Leu
 35 40 45

Asp Glu Phe Gln His Ala Leu Cys Glu Asn Gly Lys Asn Phe Gly Ser
 50 55 60

Met Asn Met Asp Glu Phe Leu Val Ser Ile Trp Asn Ala Glu Glu Asn
 65 70 75 80

Asn Asn Asn Gln Gln Gln Ala Ala Ala Ala Gly Ser His Ser Val
 85 90 95

Pro Ala Asn His Asn Gly Phe Asn Asn Asn Asn Asn Gly Gly Glu
 100 105 110

Gly Gly Val Gly Val Phe Ser Gly Gly Ser Arg Gly Asn Glu Asp Ala
 115 120 125

Asn Asn Lys Arg Gly Ile Ala Asn Glu Ser Ser Leu Pro Arg Gln Gly
 130 135 140

Ser Leu Thr Leu Pro Ala Pro Leu Cys Arg Lys Thr Val Asp Glu Val
 145 150 155 160

Trp Ser Glu Ile His Arg Gly Gly Gly Ser Gly Asn Gly Gly Asp Ser
 165 170 175

Asn Gly Arg Ser Ser Ser Ser Asn Gly Gln Asn Asn Ala Gln Asn Gly
180 185 190

Gly Glu Thr Ala Ala Arg Gln Pro Thr Phe Gly Glu Met Thr Leu Glu
195 200 205

Asp Phe Leu Val Lys Ala Gly Val Val Arg Glu His Pro Thr Asn Pro
210 215 220

Lys Pro Asn Pro Asn Pro Asn Gln Asn Gln Asn Pro Ser Ser Val Ile
225 230 235 240

Pro Ala Ala Ala Gln Gln Gln Leu Tyr Gly Val Phe Gln Gly Thr Gly
245 250 255

Asp Pro Ser Phe Pro Gly Gln Ala Met Gly Val Gly Asp Pro Ser Gly
260 265 270

Tyr Ala Lys Arg Thr Gly Gly Gly Tyr Gln Gln Ala Pro Pro Val
275 280 285

Gln Ala Gly Val Cys Tyr Gly Gly Gly Val Gly Phe Gly Ala Gly Gly
290 295 300

Gln Gln Met Gly Met Val Gly Pro Leu Ser Pro Val Ser Ser Asp Gly
305 310 315 320

Leu Gly His Gly Gln Val Asp Asn Ile Gly Gly Gln Tyr Gly Val Asp
325 330 335

Met Gly Gly Leu Arg Gly Arg Lys Arg Val Val Asp Gly Pro Val Glu
340 345 350

Lys Val Val Glu Arg Arg Gln Arg Arg Met Ile Lys Asn Arg Glu Ser
355 360 365

Ala Ala Arg Ser Arg Ala Arg Lys Gln Ala Tyr Thr Val Glu Leu Glu
370 375 380

Ala Glu Leu Asn Gln Leu Lys Glu Glu Asn Ala Gln Leu Lys His Ala
385 390 395 400

Leu Ala Glu Leu Glu Arg Lys Arg Lys Gln Gln Tyr Phe Glu Ser Leu
405 410 415

Lys Ser Arg Ala Gln Pro Lys Leu Pro Lys Ser Asn Gly Arg Leu Arg
420 425 430

Thr Leu Met Arg Asn Pro Ser Cys Pro Leu
435 440

<210> 269 <211> 1662 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(1662) <223> G1807

<400> 269
atg ggt gat aca gag aag tgt aac agt gat atg atc cag aga ctt cat 48
Met Gly Asp Thr Glu Lys Cys Asn Ser Asp Met Ile Gln Arg Leu His
1 5 10 15

tca tct ttc ggc act act tct tct tcc att ccc aaa aat ccc att tct 96
Ser Ser Phe Gly Thr Thr Ser Ser Ser Ile Pro Lys Asn Pro Ile Ser
20 25 30

cag ctc gat tta aac cct aat ttc atc cgc tca tca gct cct caa ttc 144
Gln Leu Asp Leu Asn Pro Asn Phe Ile Arg Ser Ser Ala Pro Gln Phe
35 40 45

tcc aag cct ttc agt gac agt ggc aaa cga atc ggt gtt cct ccg tcg 192
Ser Lys Pro Phe Ser Asp Ser Gly Lys Arg Ile Gly Val Pro Pro Ser
50 55 60

cac ccc aac tta atc cca ccg act tct ccg ttt tct cag atc ccg acc 240
His Pro Asn Leu Ile Pro Pro Thr Ser Pro Phe Ser Gln Ile Pro Thr
65 70 75 80

acc cga caa ccc ggt tcg cat aat ttt aac ccg gga gga gct aat cat 288
Thr Arg Gln Pro Gly Ser His Asn Phe Asn Pro Gly Gly Ala Asn His
85 90 95

tca cgg tca atg tca cag ccc aac tct ttc ttc tct ttt gac tcc tta 336
Ser Arg Ser Met Ser Gln Pro Asn Ser Phe Phe Ser Phe Asp Ser Leu
100 105 110

cct ccg tta agc cct tct ccg ttt cga gat cac gat gtt tca atg gag 384
Pro Pro Leu Ser Pro Ser Pro Phe Arg Asp His Asp Val Ser Met Glu
115 120 125

gat aga gat tcc ggc gtg ttt aac agc aac cat tcg ttg cct cca tcg 432
Asp Arg Asp Ser Gly Val Phe Asn Ser Asn His Ser Leu Pro Pro Ser
130 135 140

ccg ttc acg agg tgt aat tcg acc tct tct agc tcc ttg aga gtc ggt 480
Pro Phe Thr Arg Cys Asn Ser Thr Ser Ser Ser Ser Leu Arg Val Gly
145 150 155 160

gag agt tta cct ccg aga aag tct cat aga cgc tcc aac agt gat atc Glu Ser Leu Pro Pro Arg Lys Ser His Arg Arg Ser Asn Ser Asp Ile 165 170 175	528
ccc agt ggg ttt aat tgc atg cct ttg atc cct ccg aga cca ttg gag Pro Ser Gly Phe Asn Ser Met Pro Leu Ile Pro Pro Arg Pro Leu Glu 180 185 190	576
agg tct ttt tct ggt ggg gag tgt gct gat tgg tca aag tct aat cct Arg Ser Phe Ser Gly Gly Glu Cys Ala Asp Trp Ser Lys Ser Asn Pro 195 200 205	624
ttt gtg aag aag gaa tgc agc tgc gaa agg gaa ggt gtc gga gag aga Phe Val Lys Lys Glu Ser Ser Cys Glu Arg Glu Gly Val Gly Glu Arg 210 215 220	672
gaa gct atg gat gat ctc ttc tca gca tat atg aat ctt gaa aac att Glu Ala Met Asp Asp Leu Phe Ser Ala Tyr Met Asn Leu Glu Asn Ile 225 230 235 240	720
gat gtg ttg aac tcc tct gaa gct gat gat agc aag aac ggt aat gag Asp Val Leu Asn Ser Ser Glu Ala Asp Asp Ser Lys Asn Gly Asn Glu 245 250 255	768
aat agg gat gat atg gag agc agc aga gca agc ggg acc aag act aac Asn Arg Asp Asp Met Glu Ser Ser Arg Ala Ser Gly Thr Lys Thr Asn 260 265 270	816
ggt agt gat acg gaa gga gag agc agc agt gtc aat gag agt gcc aat Gly Ser Asp Thr Glu Gly Glu Ser Ser Ser Val Asn Glu Ser Ala Asn 275 280 285	864
aat aat atg aat tct tct ggt gaa aag aga gag agc gtg aag aga aga Asn Asn Met Asn Ser Ser Gly Glu Lys Arg Glu Ser Val Lys Arg Arg 290 295 300	912
gcg gct gga gga gat att gct cct acc acc aga cat tac agg agt gtt Ala Ala Gly Gly Asp Ile Ala Pro Thr Thr Arg His Tyr Arg Ser Val 305 310 315 320	960
tca gtg gac agt tgt ttc atg gag aag ttg tct ttt ggt gat gaa tct Ser Val Asp Ser Cys Phe Met Glu Lys Leu Ser Phe Gly Asp Glu Ser 325 330 335	1008
cta aag ccg cct cct tct cct gga tct atg tca agg aaa gtt tcc cct Leu Lys Pro Pro Pro Ser Pro Gly Ser Met Ser Arg Lys Val Ser Pro 340 345 350	1056
acc aat tgc gtt gat ggg aac tgc ggt gct gct ttt agc atc gag ttc Thr Asn Ser Val Asp Gly Asn Ser Ser Gly Ala Ala Phe Ser Ile Glu Phe 355 360 365	1104
aat aac ggt gag ttt act gca gcg gaa atg aag aag atc atg gca aat Asn Asn Gly Glu Phe Thr Ala Ala Glu Met Lys Lys Ile Met Ala Asn 370 375 380	1152
gat aaa cta gca gag atg gcc atg tct gac cct aaa cgt gtc aaa agg	1200

Asp Lys Leu Ala Glu Met Ala Met Ser Asp Pro Lys Arg Val Lys Arg
 385 390 395 400
 aat gat cct ctt ttc aga atc tta gcg aac cgt caa tcc gca gca cgg 1248
 Asn Asp Pro Leu Phe Arg Ile Leu Ala Asn Arg Gln Ser Ala Ala Arg
 405 410 415
 tca aag gag agg aag atg cgg tac ata gta gaa ttg gaa cac aaa gtg 1296
 Ser Lys Glu Arg Lys Met Arg Tyr Ile Val Glu Leu Glu His Lys Val
 420 425 430
 cag act ctt cag acc gag gct acc aca ttg tct gct cag ctc aca ctt 1344
 Gln Thr Leu Gln Thr Glu Ala Thr Thr Leu Ser Ala Gln Leu Thr Leu
 435 440 445
 ttg cag cgc gat atg atg ggg ttg aca aat cag aac aat gag ctt aag 1392
 Leu Gln Arg Asp Met Met Gly Leu Thr Asn Gln Asn Asn Glu Leu Lys
 450 455 460
 ttc cgg ctt caa gca atg gag caa caa gcg cgt ctt cgc gat gct ctg 1440
 Phe Arg Leu Gln Ala Met Glu Gln Gln Ala Arg Leu Arg Asp Ala Leu
 465 470 475
 aac gaa gca ctg aat gga gaa gtc cag cga ctg aaa ctg gca atc ggt 1488
 Asn Glu Ala Leu Asn Gly Glu Val Gln Arg Leu Lys Leu Ala Ile Gly
 485 490 495
 gag agc agt cag aac gaa tca gag aga tca aag atg caa tca ctc aac 1536
 Glu Ser Ser Gln Asn Glu Ser Glu Arg Ser Lys Met Gln Ser Leu Asn
 500 505 510
 gct gag atg ttc cag caa ctc aac atc agc cag tta aga cag cag cca 1584
 Ala Glu Met Phe Gln Gln Leu Asn Ile Ser Gln Leu Arg Gln Gln Pro
 515 520 525
 caa cag atg cag caa cag tct cat cag cag aac cac cag aat gga acc 1632
 Gln Gln Met Gln Gln Gln Ser His Gln Gln Asn His Gln Asn Gly Thr
 530 535 540
 atg gca aca aaa tct gaa tca aat gaa tag 1662
 Met Ala Thr Lys Ser Glu Ser Asn Glu
 545 550

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Met Gly Asp Thr Glu Lys Cys Asn Ser Asp Met Ile Gln Arg Leu His
 1 5 10 15

Ser Ser Phe Gly Thr Thr Ser Ser Ser Ile Pro Lys Asn Pro Ile Ser
 20 25 30

Gln Leu Asp Leu Asn Pro Asn Phe Ile Arg Ser Ser Ala Pro Gln Phe
 35 40 45

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Ser Lys Pro Phe Ser Asp Ser Gly Lys Arg Ile Gly Val Pro Pro Ser
50 55 60

His Pro Asn Leu Ile Pro Pro Thr Ser Pro Phe Ser Gln Ile Pro Thr
65 70 75 80

Thr Arg Gln Pro Gly Ser His Asn Phe Asn Pro Gly Gly Ala Asn His
85 90 95

Ser Arg Ser Met Ser Gln Pro Asn Ser Phe Phe Ser Phe Asp Ser Leu
100 105 110

Pro Pro Leu Ser Pro Ser Pro Phe Arg Asp His Asp Val Ser Met Glu
115 120 125

Asp Arg Asp Ser Gly Val Phe Asn Ser Asn His Ser Leu Pro Pro Ser
130 135 140

Pro Phe Thr Arg Cys Asn Ser Thr Ser Ser Ser Ser Leu Arg Val Gly
145 150 155 160

Glu Ser Leu Pro Pro Arg Lys Ser His Arg Arg Ser Asn Ser Asp Ile
165 170 175

Pro Ser Gly Phe Asn Ser Met Pro Leu Ile Pro Pro Arg Pro Leu Glu
180 185 190

Arg Ser Phe Ser Gly Gly Glu Cys Ala Asp Trp Ser Lys Ser Asn Pro
195 200 205

Phe Val Lys Lys Glu Ser Ser Cys Glu Arg Glu Gly Val Gly Glu Arg
210 215 220

Glu Ala Met Asp Asp Leu Phe Ser Ala Tyr Met Asn Leu Glu Asn Ile
225 230 235 240

Asp Val Leu Asn Ser Ser Glu Ala Asp Asp Ser Lys Asn Gly Asn Glu
245 250 255

Asn Arg Asp Asp Met Glu Ser Ser Arg Ala Ser Gly Thr Lys Thr Asn
260 265 270

Gly Ser Asp Thr Glu Gly Glu Ser Ser Ser Val Asn Glu Ser Ala Asn
275 280 285

Asn Asn Met Asn Ser Ser Gly Glu Lys Arg Glu Ser Val Lys Arg Arg
290 295 300

Ala Ala Gly Gly Asp Ile Ala Pro Thr Thr Arg His Tyr Arg Ser Val
305 310 315 320

Ser Val Asp Ser Cys Phe Met Glu Lys Leu Ser Phe Gly Asp Glu Ser
325 330 335

Leu Lys Pro Pro Pro Ser Pro Gly Ser Met Ser Arg Lys Val Ser Pro
340 345 350

Thr Asn Ser Val Asp Gly Asn Ser Gly Ala Ala Phe Ser Ile Glu Phe
355 360 365

Asn Asn Gly Glu Phe Thr Ala Ala Glu Met Lys Lys Ile Met Ala Asn
370 375 380

Asp Lys Leu Ala Glu Met Ala Met Ser Asp Pro Lys Arg Val Lys Arg
385 390 395 400

Asn Asp Pro Leu Phe Arg Ile Leu Ala Asn Arg Gln Ser Ala Ala Arg
405 410 415

Ser Lys Glu Arg Lys Met Arg Tyr Ile Val Glu Leu Glu His Lys Val
420 425 430

Gln Thr Leu Gln Thr Glu Ala Thr Thr Leu Ser Ala Gln Leu Thr Leu
435 440 445

Leu Gln Arg Asp Met Met Gly Leu Thr Asn Gln Asn Asn Glu Leu Lys
450 455 460

Phe Arg Leu Gln Ala Met Glu Gln Gln Ala Arg Leu Arg Asp Ala Leu
465 470 475 480

Asn Glu Ala Leu Asn Gly Glu Val Gln Arg Leu Lys Leu Ala Ile Gly
485 490 495

Glu Ser Ser Gln Asn Glu Ser Glu Arg Ser Lys Met Gln Ser Leu Asn

500

505

510

Ala Glu Met Phe Gln Gln Leu Asn Ile Ser Gln Leu Arg Gln Gln Pro
515 520 525

Gln Gln Met Gln Gln Gln Ser His Gln Gln Asn His Gln Asn Gly Thr
530 535 540

Met Ala Thr Lys Ser Glu Ser Asn Glu
545 550

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Met Ile Gly Thr Ser Phe Pro Glu Asp Leu Asp Cys Gly Asn Phe Phe
1 5 10 15

gac aac atg gat gat ctc atg gac ttt ccc ggt gga gat atc gat gtc 96
Asp Asn Met Asp Asp Leu Met Asp Phe Pro Gly Gly Asp Ile Asp Val
20 25 30

ggt ttc ggc ata ggt gac tcc gac tct ttc cct acc atc tgg acc act 144
Gly Phe Gly Ile Gly Asp Ser Asp Ser Phe Pro Thr Ile Trp Thr Thr
35 40 45

cat cac gac acg tgg cct gcc gct tct gat cct ctc ttc tct tcc aac 192
His His Asp Thr Trp Pro Ala Ala Ser Asp Pro Leu Phe Ser Ser Asn
50 55 60

acc aac tct gat tca tca cct gag ctc tat gtt ccg ttt gag gac att 240
Thr Asn Ser Asp Ser Ser Pro Glu Leu Tyr Val Pro Phe Glu Asp Ile
65 70 75 80

gtt aag gtg gaa aga cct cca agc ttt gta gag gaa aca ttg gtt gag 288
Val Lys Val Glu Arg Pro Pro Ser Phe Val Glu Glu Thr Leu Val Glu
85 90 95

aag aag gaa gat tcg ttt tcg aca aac act gat tca tca tct tct cat 336
Lys Lys Glu Asp Ser Phe Ser Thr Asn Thr Asp Ser Ser Ser Ser His
100 105 110

agc caa ttc agg agc tca agt cca gtg tcg gtt ctc gag agc agc tcc 384
Ser Gln Phe Arg Ser Ser Ser Pro Val Ser Val Leu Glu Ser Ser Ser
115 120 125

tcc tcg tct caa acc acc aac aca acc tcc ctt gtt ctc cct gga aag 432
Ser Ser Ser Gln Thr Thr Asn Thr Thr Ser Leu Val Leu Pro Gly Lys
130 135 140

cac ggt cgt cca cgc aca aaa cgc cct cgt cca cct gtc cag gat aaa 480
His Gly Arg Pro Arg Thr Lys Arg Pro Arg Pro Pro Val Gln Asp Lys

145	150	155	160	
gat aga gtc aaa gac aat gtg tgc ggt ggt gac tgc cgc ctc atc att				528
Asp Arg Val Lys Asp Asn Val Cys Gly Gly Asp Ser Arg Leu Ile Ile	165	170	175	
aga ata ccg aaa cag ttt ctc tct gat cac aac aag atg atc aac aag				576
Arg Ile Pro Lys Gln Phe Leu Ser Asp His Asn Lys Met Ile Asn Lys	180	185	190	
aag aag aag aag aag gcc aag att act tct tcc tct tct tgc tcc ggg				624
Lys Lys Lys Lys Lys Ala Lys Ile Thr Ser Ser Ser Ser Ser Ser Gly	195	200	205	
att gat ctt gaa gtc aat gga aac aac gtc gat tgc tat tct tca gag				672
Ile Asp Leu Glu Val Asn Gly Asn Asn Val Asp Ser Tyr Ser Ser Glu	210	215	220	
caa tat ccg ctt agg aaa tgt atg cac tgt gag gtc acc aag act cca				720
Gln Tyr Pro Leu Arg Lys Cys Met His Cys Glu Val Thr Lys Thr Pro	225	230	235	240
cag tgg agg ctt ggt cca atg ggt cca aag aca ctt tgc aat gcg tgc				768
Gln Trp Arg Leu Gly Pro Met Gly Pro Lys Thr Leu Cys Asn Ala Cys	245	250	255	
ggt gta cgt tac aaa tca ggg agg ctt ttc ccg gag tac cgt cca gct				816
Gly Val Arg Tyr Lys Ser Gly Arg Leu Phe Pro Glu Tyr Arg Pro Ala	260	265	270	
gct agt cca aca ttt act cca gct ctt cac tca aac tca cac aag aaa				864
Ala Ser Pro Thr Phe Thr Pro Ala Leu His Ser Asn Ser His Lys Lys	275	280	285	
gtg gct gaa atg aga aac aag aga tgc agt gat ggt agc tac ata acc				912
Val Ala Glu Met Arg Asn Lys Arg Cys Ser Asp Gly Ser Tyr Ile Thr	290	295	300	
gaa gag aat gat ctg caa ggg ctg att ccg aac aat gcc tac att ggc				960
Glu Glu Asn Asp Leu Gln Gly Leu Ile Pro Asn Asn Ala Tyr Ile Gly	305	310	315	320
gta gac taa				969
Val Asp				

<210> 272 <211> 322 <212> PRT <213> Arabidopsis thaliana <400> 272

Met Ile Gly Thr Ser Phe Pro Glu Asp Leu Asp Cys Gly Asn Phe Phe
1 5 10 15

Asp Asn Met Asp Asp Leu Met Asp Phe Pro Gly Gly Asp Ile Asp Val
20 25 30

Gly Phe Gly Ile Gly Asp Ser Asp Ser Phe Pro Thr Ile Trp Thr Thr
35 40 45

His His Asp Thr Trp Pro Ala Ala Ser Asp Pro Leu Phe Ser Ser Asn
50 55 60

Thr Asn Ser Asp Ser Ser Pro Glu Leu Tyr Val Pro Phe Glu Asp Ile
65 70 75 80

Val Lys Val Glu Arg Pro Pro Ser Phe Val Glu Glu Thr Leu Val Glu
85 90 95

Lys Lys Glu Asp Ser Phe Ser Thr Asn Thr Asp Ser Ser Ser Ser His
100 105 110

Ser Gln Phe Arg Ser Ser Ser Pro Val Ser Val Leu Glu Ser Ser Ser
115 120 125

Ser Ser Ser Gln Thr Thr Asn Thr Thr Ser Leu Val Leu Pro Gly Lys
130 135 140

His Gly Arg Pro Arg Thr Lys Arg Pro Arg Pro Pro Val Gln Asp Lys
145 150 155 160

Asp Arg Val Lys Asp Asn Val Cys Gly Gly Asp Ser Arg Leu Ile Ile
165 170 175

Arg Ile Pro Lys Gln Phe Leu Ser Asp His Asn Lys Met Ile Asn Lys
180 185 190

Lys Lys Lys Lys Lys Ala Lys Ile Thr Ser Ser Ser Ser Ser Ser Gly
195 200 205

Ile Asp Leu Glu Val Asn Gly Asn Asn Val Asp Ser Tyr Ser Ser Glu
210 215 220

Gln Tyr Pro Leu Arg Lys Cys Met His Cys Glu Val Thr Lys Thr Pro
225 230 235 240

Gln Trp Arg Leu Gly Pro Met Gly Pro Lys Thr Leu Cys Asn Ala Cys
245 250 255

Gly Val Arg Tyr Lys Ser Gly Arg Leu Phe Pro Glu Tyr Arg Pro Ala

260

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Ala Ser Pro Thr Phe Thr Pro Ala Leu His Ser Asn Ser His Lys Lys
275 280 285

Val Ala Glu Met Arg Asn Lys Arg Cys Ser Asp Gly Ser Tyr Ile Thr
290 295 300

Glu Glu Asn Asp Leu Gln Gly Leu Ile Pro Asn Asn Ala Tyr Ile Gly
305 310 315 320

Val Asp

<210> 273 <211> 668 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (47)..(610) <223> G1836

<400> 273
ataacaagcc tagaactacta gaaacttcaa aaaagaaaa aatctt atg gag aac 55
Met Glu Asn
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aac aac ggc aac aac cag ctg cca ccg aaa ggt aac gag caa ctg aag 103
Asn Asn Gly Asn Asn Gln Leu Pro Pro Lys Gly Asn Glu Gln Leu Lys
5 10 15

agt ttc tgg tca aaa gag atg gaa ggt aac tta gat ttc aaa aat cac 151
Ser Phe Trp Ser Lys Glu Met Glu Gly Asn Leu Asp Phe Lys Asn His
20 25 30 35

gac ctt cct ata act cgt atc aag aag att atg aag tat gat ccg gat 199
Asp Leu Pro Ile Thr Arg Ile Lys Lys Ile Met Lys Tyr Asp Pro Asp
40 45 50

gtg act atg ata gct agt gag gct cca atc ctc ctc tcg aaa gca tgt 247
Val Thr Met Ile Ala Ser Glu Ala Pro Ile Leu Leu Ser Lys Ala Cys
55 60 65

gag atg ttt atc atg gat ctc acg atg cgt tcg tgg ctc cat gct cag 295
Glu Met Phe Ile Met Asp Leu Thr Met Arg Ser Trp Leu His Ala Gln
70 75 80

gaa agc aaa cga gtc acg cta cag aaa tct aat gtc gat gcc gca gtg 343
Glu Ser Lys Arg Val Thr Leu Gln Lys Ser Asn Val Asp Ala Ala Val
85 90 95

gct caa act gtt atc ttt gat ttc ttg ctt gat gat gac att gag gta 391
Ala Gln Thr Val Ile Phe Asp Phe Leu Leu Asp Asp Ile Glu Val
100 105 110 115

aag aga gag tct gtt gcc gcc gct gct gat cct gtg gcc atg cca cct 439
Lys Arg Glu Ser Val Ala Ala Ala Asp Pro Val Ala Met Pro Pro

	120		125		130	
att gac gat gga gag ctg cct cca gga atg gta att gga act cct gtt						487
Ile Asp Asp Gly Glu Leu Pro Pro Gly Met Val Ile Gly Thr Pro Val						
	135		140		145	
tgt tgt agt ctt gga atc cac caa cca caa cca caa atg cag gca tgg						535
Cys Cys Ser Leu Gly Ile His Gln Pro Gln Pro Gln Met Gln Ala Trp						
	150		155		160	
cct gga gct tgg acc tcg gtg tct ggt gag gag gaa gaa gcg cgt ggg						583
Pro Gly Ala Trp Thr Ser Val Ser Gly Glu Glu Glu Glu Ala Arg Gly						
	165		170		175	
aaa aaa gga ggt gac gac gga aac taa taagtgaat acgttttagg						630
Lys Lys Gly Gly Asp Asp Gly Asn						
	180		185			
gtattttcaa gggaatatgt agtaaatagt catggatc						668
<210> 274 <211> 187 <212> PRT <213> Arabidopsis thaliana <400> 274						
Met Glu Asn Asn Asn Gly Asn Asn Gln Leu Pro Pro Lys Gly Asn Glu						
1	5		10		15	
Gln Leu Lys Ser Phe Trp Ser Lys Glu Met Glu Gly Asn Leu Asp Phe						
	20		25		30	
Lys Asn His Asp Leu Pro Ile Thr Arg Ile Lys Lys Ile Met Lys Tyr						
	35		40		45	
Asp Pro Asp Val Thr Met Ile Ala Ser Glu Ala Pro Ile Leu Leu Ser						
	50		55		60	
Lys Ala Cys Glu Met Phe Ile Met Asp Leu Thr Met Arg Ser Trp Leu						
	65		70		75	80
His Ala Gln Glu Ser Lys Arg Val Thr Leu Gln Lys Ser Asn Val Asp						
	85		90		95	
Ala Ala Val Ala Gln Thr Val Ile Phe Asp Phe Leu Leu Asp Asp Asp						
	100		105		110	
Ile Glu Val Lys Arg Glu Ser Val Ala Ala Ala Ala Asp Pro Val Ala						
	115		120		125	
Met Pro Pro Ile Asp Asp Gly Glu Leu Pro Pro Gly Met Val Ile Gly						
	130		135		140	

Thr Pro Val Cys Cys Ser Leu Gly Ile His Gln Pro Gln Pro Gln Met
145 150 155 160

Gln Ala Trp Pro Gly Ala Trp Thr Ser Val Ser Gly Glu Glu Glu Glu
165 170 175

Ala Arg Gly Lys Lys Gly Gly Asp Asp Gly Asn
180 185

<210> 275 <211> 897 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(897) <223> G1900

<400> 275
atg ctg gaa act aaa gat cct gcg ata aag ctc ttt ggt atg aaa att 48
Met Leu Glu Thr Lys Asp Pro Ala Ile Lys Leu Phe Gly Met Lys Ile
1 5 10 15

cct ttc ccg acg gtt tta gag gtt gct gat gaa gaa gaa gaa aag aac 96
Pro Phe Pro Thr Val Leu Glu Val Ala Asp Glu Glu Glu Glu Lys Asn
20 25 30

caa aac aag aca tta act gat caa tcg gag aaa gac aaa acc cta aag 144
Gln Asn Lys Thr Leu Thr Asp Gln Ser Glu Lys Asp Lys Thr Leu Lys
35 40 45

aaa cca acc aag att ctt cca tgt cca aga tgc aac agc atg gag act 192
Lys Pro Thr Lys Ile Leu Pro Cys Pro Arg Cys Asn Ser Met Glu Thr
50 55 60

aag ttc tgt tac tac aac aac tac aac gta aac caa cct cgc cat ttt 240
Lys Phe Cys Tyr Tyr Asn Asn Tyr Asn Val Asn Gln Pro Arg His Phe
65 70 75 80

tgt aaa gct tgt cag aga tat tgg acc tca ggt ggg acc atg aga agt 288
Cys Lys Ala Cys Gln Arg Tyr Trp Thr Ser Gly Gly Thr Met Arg Ser
85 90 95

gtt cca atc gga gca gga cgg cgc aag aac aag aac aac tca cca act 336
Val Pro Ile Gly Ala Gly Arg Arg Lys Asn Lys Asn Asn Ser Pro Thr
100 105 110

tca cat tac cac cat gtg act atc tcc gaa aca aat ggt ccg gtc ctt 384
Ser His Tyr His His Val Thr Ile Ser Glu Thr Asn Gly Pro Val Leu
115 120 125

agt ttc agc ctc gga gat gat caa aag gtc tcg agt aat agg ttt ggt 432
Ser Phe Ser Leu Gly Asp Asp Gln Lys Val Ser Ser Asn Arg Phe Gly
130 135 140

aat caa aag cta gtt gct agg ata gag aac aat gac gag cgc tct aat 480
Asn Gln Lys Leu Val Ala Arg Ile Glu Asn Asn Asp Glu Arg Ser Asn
145 150 155 160

aac aac act tcg aac ggt ttg aat tgt ttt ccg gga gtt tcg tgg ccg 528
Asn Asn Thr Ser Asn Gly Leu Asn Cys Phe Pro Gly Val Ser Trp Pro
165 170 175

tac acg tgg aat cct gcg ttt tac ccg gtt tac cct tat tgg agc atg 576
Tyr Thr Trp Asn Pro Ala Phe Tyr Pro Val Tyr Pro Tyr Trp Ser Met
180 185 190

cca gtg ttg tct tct ccg gta agt tca agt cct act tct act ctt ggt 624
Pro Val Leu Ser Ser Pro Val Ser Ser Ser Pro Thr Ser Thr Leu Gly
195 200 205

aag cat tcg aga gac gaa gac gag acg gtg aag caa aaa cag agg aat 672
Lys His Ser Arg Asp Glu Asp Thr Val Lys Gln Lys Gln Arg Asn
210 215 220

gga tct gta ttg gtt cca aag act ttg aga att gat gat cct aat gaa 720
Gly Ser Val Leu Val Pro Lys Thr Leu Arg Ile Asp Asp Pro Asn Glu
225 230 235 240

gct gca aag agt tcg ata tgg aca aca ctt ggg atc aag aac gaa gtt 768
Ala Ala Lys Ser Ser Ile Trp Thr Thr Leu Gly Ile Lys Asn Glu Val
245 250 255

atg ttc aat ggg ttt ggt tcg aag aaa gag gtt aag ctc agt aac aaa 816
Met Phe Asn Gly Phe Gly Ser Lys Lys Glu Val Lys Leu Ser Asn Lys
260 265 270

gaa gaa aca gag acc tca ctt gtt ctt tgt gca aac cct gct gcg tta 864
Glu Glu Thr Glu Thr Ser Leu Val Leu Cys Ala Asn Pro Ala Ala Leu
275 280 285

tca aga tca atc aat ttc cat gag cag atg tga 897
Ser Arg Ser Ile Asn Phe His Glu Gln Met
290 295

<210> 276 <211> 298 <212> PRT <213> Arabidopsis thaliana <400> 276

Met Leu Glu Thr Lys Asp Pro Ala Ile Lys Leu Phe Gly Met Lys Ile
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Pro Phe Pro Thr Val Leu Glu Val Ala Asp Glu Glu Glu Glu Lys Asn
20 25 30

Gln Asn Lys Thr Leu Thr Asp Gln Ser Glu Lys Asp Lys Thr Leu Lys
35 40 45

Lys Pro Thr Lys Ile Leu Pro Cys Pro Arg Cys Asn Ser Met Glu Thr
50 55 60

Lys Phe Cys Tyr Tyr Asn Asn Tyr Asn Val Asn Gln Pro Arg His Phe

65

70

75

80

Cys Lys Ala Cys Gln Arg Tyr Trp Thr Ser Gly Gly Thr Met Arg Ser
85 90 95

Val Pro Ile Gly Ala Gly Arg Arg Lys Asn Lys Asn Asn Ser Pro Thr
100 105 110

Ser His Tyr His His Val Thr Ile Ser Glu Thr Asn Gly Pro Val Leu
115 120 125

Ser Phe Ser Leu Gly Asp Asp Gln Lys Val Ser Ser Asn Arg Phe Gly
130 135 140

Asn Gln Lys Leu Val Ala Arg Ile Glu Asn Asn Asp Glu Arg Ser Asn
145 150 155 160

Asn Asn Thr Ser Asn Gly Leu Asn Cys Phe Pro Gly Val Ser Trp Pro
165 170 175

Tyr Thr Trp Asn Pro Ala Phe Tyr Pro Val Tyr Pro Tyr Trp Ser Met
180 185 190

Pro Val Leu Ser Ser Pro Val Ser Ser Ser Pro Thr Ser Thr Leu Gly
195 200 205

Lys His Ser Arg Asp Glu Asp Glu Thr Val Lys Gln Lys Gln Arg Asn
210 215 220

Gly Ser Val Leu Val Pro Lys Thr Leu Arg Ile Asp Asp Pro Asn Glu
225 230 235 240

Ala Ala Lys Ser Ser Ile Trp Thr Thr Leu Gly Ile Lys Asn Glu Val
245 250 255

Met Phe Asn Gly Phe Gly Ser Lys Lys Glu Val Lys Leu Ser Asn Lys
260 265 270

Glu Glu Thr Glu Thr Ser Leu Val Leu Cys Ala Asn Pro Ala Ala Leu
275 280 285

Ser Arg Ser Ile Asn Phe His Glu Gln Met
290 295

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 <222> (1)..(1200) <223> G1903

<400> 277
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 Met Ser Lys Ser Arg Asp Thr Glu Ile Lys Leu Phe Gly Arg Thr Ile
 1 5 10 15
 aca tct ctt tta gat gtg aat tgt tat gat ccg tcg tcg ttg tcc cct 96
 Thr Ser Leu Leu Asp Val Asn Cys Tyr Asp Pro Ser Ser Ser Pro Pro
 20 25 30
 gtt cac gat gtt tct tct gat cca agc aag gag gat tcg tct tct tct 144
 Val His Asp Val Ser Ser Asp Pro Ser Lys Glu Asp Ser Ser Ser Ser
 35 40 45
 tca tct tct tgt tct cca act att gga cca atc agg gtt ccg gtt aaa 192
 Ser Ser Ser Cys Ser Pro Thr Ile Gly Pro Ile Arg Val Pro Val Lys
 50 55 60
 aaa agt gag caa gag agt aac aaa ttc aaa gat cca tat ata tta tcc 240
 Lys Ser Glu Gln Glu Ser Asn Lys Phe Lys Asp Pro Tyr Ile Leu Ser
 65 70 75 80
 gat cta aac gaa cca cca aaa gca gta tct gag att tca tca cca aga 288
 Asp Leu Asn Glu Pro Pro Lys Ala Val Ser Glu Ile Ser Ser Pro Arg
 85 90 95
 agt tcc aag aac aac tgt gat caa cag agc gag atc aca aca aca act 336
 Ser Ser Lys Asn Asn Cys Asp Gln Gln Ser Glu Ile Thr Thr Thr Thr
 100 105 110
 acc aca agt act aca tca gga gag aaa tca acg gct ctc aag aaa ccg 384
 Thr Thr Ser Thr Thr Ser Gly Glu Lys Ser Thr Ala Leu Lys Lys Pro
 115 120 125
 gac aag ctt att cca tgt cct aga tgt gaa agc gca aac acc aaa ttc 432
 Asp Lys Leu Ile Pro Cys Pro Arg Cys Glu Ser Ala Asn Thr Lys Phe
 130 135 140
 tgt tat tac aac aac tac aac gtg aac cag cca cgt tac ttc tgc agg 480
 Cys Tyr Tyr Asn Asn Tyr Asn Val Asn Gln Pro Arg Tyr Phe Cys Arg
 145 150 155 160
 aac tgt cag agg tat tgg aca gct ggt gga tct atg agg aac gtt cct 528
 Asn Cys Gln Arg Tyr Trp Thr Ala Gly Ser Met Arg Asn Val Pro
 165 170 175
 gtt ggc tca ggt cgt cgc aag aac aaa gga tgg cct tct tca aac cat 576
 Val Gly Ser Gly Arg Arg Lys Asn Lys Gly Trp Pro Ser Ser Asn His
 180 185 190
 tac ttg caa gtc act tct gag gat tgt gat aat aat aac tcg ggg acg 624
 Tyr Leu Gln Val Thr Ser Glu Asp Cys Asp Asn Asn Asn Ser Gly Thr
 195 200 205

atc ctt agt ttc ggt tct tcg gag tct tcg gtt aca gag act ggt aag 672
 Ile Leu Ser Phe Gly Ser Ser Glu Ser Ser Val Thr Glu Thr Gly Lys
 210 215 220
 cat cag tca ggt gat aca gca aag ata agt gct gat tca gtt tct caa 720
 His Gln Ser Gly Asp Thr Ala Lys Ile Ser Ala Asp Ser Val Ser Gln
 225 230 235 240
 gaa aat aaa agc tac caa ggg ttt ctt cct ccg caa gta atg tta cct 768
 Glu Asn Lys Ser Tyr 245 Gln Gly Phe Leu Pro Pro Gln Val Met Leu Pro 255
 aat aat tct tct cct tgg cct tac caa tgg agt cca acg ggt cct aac 816
 Asn Asn Ser Ser 260 Pro Trp Pro Tyr 265 Trp Ser Pro Thr 270 Pro Asn
 gct agt ttc tac cct gtc ccc ttc tac tgg gga tgc acg gtt ccg ata 864
 Ala Ser Phe Tyr Pro Val Pro Phe Tyr Trp Gly Cys Thr Val Pro Ile
 275 280 285
 tac cct acc tca gag act tca tca tgt tta gga aaa ccg tca aga gat 912
 Tyr Pro Thr Ser Glu Thr Ser Ser Cys Leu Gly Lys Arg Ser Arg Asp
 290 295 300
 caa act gaa gga aga atc aat gat act aat aca aca ata act act aca 960
 Gln Thr Glu Gly Arg Ile Asn Asp Thr Asn Thr Thr Ile Thr Thr Thr
 305 310 315 320
 aga gca aga ttg gtc tca gaa tct ctt aga atg aat atc gaa gct agt 1008
 Arg Ala Arg Leu Val Ser Glu Ser Leu Arg Met Asn Ile Glu Ala Ser
 325 330 335
 aag agc gct gtg tgg tct aag tta ccg aca aaa ccc gag aaa aaa acg 1056
 Lys Ser Ala Val Trp Ser Lys Leu Pro Thr Lys Pro Glu Lys Lys Thr
 340 345 350
 caa gga ttc agt ttg ttc aat gga ttt gac aca aag gga aac agc aac 1104
 Gln Gly Phe Ser Leu Phe Asn Gly Phe Asp Thr Lys Gly Asn Ser Asn
 355 360 365
 aga agt agc ttg gtc tcc gaa act tct cac agt cta caa gca aac cct 1152
 Arg Ser Ser Leu Val Ser Glu Thr Ser His Ser Leu Gln Ala Asn Pro
 370 375 380
 gca gcg atg tct aga gct atg aac ttc agg gag agc atg caa caa taa 1200
 Ala Ala Met Ser Arg Ala Met Asn Phe Arg Glu Ser Met Gln Gln
 385 390 395
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 Met Ser Lys Ser Arg Asp Thr Glu Ile Lys Leu Phe Gly Arg Thr Ile
 1 5 10 15
 Thr Ser Leu Leu Asp Val Asn Cys Tyr Asp Pro Ser Ser Leu Ser Pro

20

25

30

Val His Asp Val Ser Ser Asp Pro Ser Lys Glu Asp Ser Ser Ser Ser
35 40 45

Ser Ser Ser Cys Ser Pro Thr Ile Gly Pro Ile Arg Val Pro Val Lys
50 55 60

Lys Ser Glu Gln Glu Ser Asn Lys Phe Lys Asp Pro Tyr Ile Leu Ser
65 70 75 80

Asp Leu Asn Glu Pro Pro Lys Ala Val Ser Glu Ile Ser Ser Pro Arg
85 90 95

Ser Ser Lys Asn Asn Cys Asp Gln Gln Ser Glu Ile Thr Thr Thr Thr
100 105 110

Thr Thr Ser Thr Thr Ser Gly Glu Lys Ser Thr Ala Leu Lys Lys Pro
115 120 125

Asp Lys Leu Ile Pro Cys Pro Arg Cys Glu Ser Ala Asn Thr Lys Phe
130 135 140

Cys Tyr Tyr Asn Asn Tyr Asn Val Asn Gln Pro Arg Tyr Phe Cys Arg
145 150 155 160

Asn Cys Gln Arg Tyr Trp Thr Ala Gly Gly Ser Met Arg Asn Val Pro
165 170 175

Val Gly Ser Gly Arg Arg Lys Asn Lys Gly Trp Pro Ser Ser Asn His
180 185 190

Tyr Leu Gln Val Thr Ser Glu Asp Cys Asp Asn Asn Asn Ser Gly Thr
195 200 205

Ile Leu Ser Phe Gly Ser Ser Glu Ser Ser Val Thr Glu Thr Gly Lys
210 215 220

His Gln Ser Gly Asp Thr Ala Lys Ile Ser Ala Asp Ser Val Ser Gln
225 230 235 240

Glu Asn Lys Ser Tyr Gln Gly Phe Leu Pro Pro Gln Val Met Leu Pro
245 250 255

Asn Asn Ser Ser Pro Trp Pro Tyr Gln Trp Ser Pro Thr Gly Pro Asn
260 265 270

Ala Ser Phe Tyr Pro Val Pro Phe Tyr Trp Gly Cys Thr Val Pro Ile
275 280 285

Tyr Pro Thr Ser Glu Thr Ser Ser Cys Leu Gly Lys Arg Ser Arg Asp
290 295 300

Gln Thr Glu Gly Arg Ile Asn Asp Thr Asn Thr Thr Ile Thr Thr Thr
305 310 315 320

Arg Ala Arg Leu Val Ser Glu Ser Leu Arg Met Asn Ile Glu Ala Ser
325 330 335

Lys Ser Ala Val Trp Ser Lys Leu Pro Thr Lys Pro Glu Lys Lys Thr
340 345 350

Gln Gly Phe Ser Leu Phe Asn Gly Phe Asp Thr Lys Gly Asn Ser Asn
355 360 365

Arg Ser Ser Leu Val Ser Glu Thr Ser His Ser Leu Gln Ala Asn Pro
370 375 380

Ala Ala Met Ser Arg Ala Met Asn Phe Arg Glu Ser Met Gln Gln
385 390 395

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Met Glu Ile Ala Thr 5

gat aca gca aag cag atg aga gac gaa gag ttg ttc aaa gca gcg gaa 104
Asp Thr Ala Lys Gln Met Arg Asp Glu Glu Leu Phe Lys Ala Ala Glu 20
10 15

tgg gga gat tca tgc ttg ttc atg tca tta tct gaa gaa cag ctc tct 152
Trp Gly Asp Ser Ser Leu Phe Met Ser Leu Ser Glu Glu Gln Leu Ser 35
25 30

aaa tct ctc aat ttc aga aac gaa gat ggt cgc tct ctc ctc cat gtc 200
Lys Ser Leu Asn Phe Arg Asn Glu Asp Gly Arg Ser Leu Leu His Val 40 45 50

gct gct tcc ttc ggc cat tct caa ata gtg aag ttg tta tca agt tca	248
Ala Ala Ser Phe Gly His Ser Gln Ile Val Lys Leu Leu Ser Ser Ser	
55 60 65	
gat gaa gca aag act gta atc aat agc aag gat gat gaa gga tgg gct	296
Asp Glu Ala Lys Thr Val Ile Asn Ser Lys Asp Asp Glu Gly Trp Ala	
70 75 80 85	
cct ttg cat tcc gct gct agc atc ggt aat gct gag etc gtt gag gtg	344
Pro Leu His Ser Ala Ser Ile Gly Asn Ala Glu Leu Val Glu Val	
90 95 100	
ott ttg acc aga ggt gct gat gtc aat gcc aaa aat aac ggt ggt cgc	392
Leu Leu Thr Arg Gly Ala Asp Val Asn Ala Lys Asn Asn Gly Arg	
105 110 115	
act gct ctt cac tat gct gct agc aaa ggc cgg ttg gag att gct cag	440
Thr Ala Leu His Tyr Ala Ala Ser Lys Gly Arg Leu Glu Ile Ala Gln	
120 125 130	
ott tta tta aca cac ggt gca aag att aac atc aca gac aag gtt ggt	488
Leu Leu Leu Thr His Gly Ala Lys Ile Asn Ile Thr Asp Lys Val Gly	
135 140 145	
tgc act cgg ott cac agg gca gca agc gtg gga aag tta gaa gtt tgt	536
Cys Thr Pro Leu His Arg Ala Ala Ser Val Gly Lys Leu Glu Val Cys	
150 155 160 165	
gaa ttt ctt att gaa gaa gga gca gag atc gat gct acg gat aaa atg	584
Glu Phe Leu Ile Glu Glu Gly Ala Glu Ile Asp Ala Thr Asp Lys Met	
170 175 180	
ggt caa act gca ctc atg cat tca gtt atc tgc gat gac aaa cag gtt	632
Gly Gln Thr Ala Leu Met His Ser Val Ile Cys Asp Asp Lys Gln Val	
185 190 195	
gcg ttc ctg ctt ata aga cat ggt gca gat gtg gat gta gaa gac aag	680
Ala Phe Leu Leu Ile Arg His Gly Ala Asp Val Asp Val Glu Asp Lys	
200 205 210	
gaa ggc tac act gtt cta ggc cga gct acc aat gaa ttc cga cct gca	728
Glu Gly Tyr Thr Val Leu Gly Arg Ala Thr Asn Glu Phe Arg Pro Ala	
215 220 225	
ott atc gat gct gct aag gcc atg ctt gaa gga taa aatgactctg	774
Leu Ile Asp Ala Ala Lys Ala Met Leu Glu Gly	
230 235 240	
gattacttta aaacttacta actctgagag ttgttttagtt acttaaaagg atttttcttt	834
actgtatcat gtttgcaaaa tgttttctgcc ttatcaatto atgttctgt	883
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1	5	10	15
Phe Lys Ala Ala Glu Trp Gly Asp Ser Ser Leu Phe Met Ser Leu Ser	20	25	30
Glu Glu Gln Leu Ser Lys Ser Leu Asn Phe Arg Asn Glu Asp Gly Arg	35	40	45
Ser Leu Leu His Val Ala Ala Ser Phe Gly His Ser Gln Ile Val Lys	50	55	60
Leu Leu Ser Ser Ser Asp Glu Ala Lys Thr Val Ile Asn Ser Lys Asp	65	70	75
Asp Glu Gly Trp Ala Pro Leu His Ser Ala Ala Ser Ile Gly Asn Ala	85	90	95
Glu Leu Val Glu Val Leu Leu Thr Arg Gly Ala Asp Val Asn Ala Lys	100	105	110
Asn Asn Gly Gly Arg Thr Ala Leu His Tyr Ala Ala Ser Lys Gly Arg	115	120	125
Leu Glu Ile Ala Gln Leu Leu Thr His Gly Ala Lys Ile Asn Ile	130	135	140
Thr Asp Lys Val Gly Cys Thr Pro Leu His Arg Ala Ala Ser Val Gly	145	150	155
Lys Leu Glu Val Cys Glu Phe Leu Ile Glu Glu Gly Ala Glu Ile Asp	165	170	175
Ala Thr Asp Lys Met Gly Gln Thr Ala Leu Met His Ser Val Ile Cys	180	185	190
Asp Asp Lys Gln Val Ala Phe Leu Leu Ile Arg His Gly Ala Asp Val	195	200	205
Asp Val Glu Asp Lys Glu Gly Tyr Thr Val Leu Gly Arg Ala Thr Asn	210	215	220
Glu Phe Arg Pro Ala Leu Ile Asp Ala Ala Lys Ala Met Leu Glu Gly	225	230	235
			240

Asn Ser Asn Ser Asp Ser Lys Asp Gln Lys Thr Leu Gln Ile Pro Gln	
180 185 190	
cct cag att gtt cag cag caa cct tct ccg tct gtg gaa ttg cga cct	739
Pro Gln Ile Val Gln Gln Gln Pro Ser Pro Ser Val Glu Leu Arg Pro	
200 205 210	
gtt agc aca aca tct tca aac agc aat aac gga acg ggc aag gca cga	787
Val Ser Thr Thr Ser Ser Asn Ser Asn Asn Gly Thr Gly Lys Ala Arg	
215 220 225	
atg cgt tgg acg cca gag ctt cac gag gct ttt gtt gag gct gtc aac	835
Met Arg Trp Thr Pro Glu Leu His Glu Ala Phe Val Glu Ala Val Asn	
230 235 240	
agt ctt ggc ggt agt gaa aga gct act cct aaa ggg gta ctg aag att	883
Ser Leu Gly Gly Ser Glu Arg Ala Thr Pro Lys Val Val Leu Lys Ile	
245 250 255	
atg aaa gtt gaa ggc ttg act ata tat cat gtt aaa agc cat tta cag	931
Met Lys Val Glu Gly Leu Thr Ile Tyr His Val Lys Ser His Leu Gln	
260 265 270 275	
aaa tat agg aca gct aga tat cgg cca gaa cca tca gaa act ggt tcg	979
Lys Tyr Arg Thr Ala Arg Tyr Arg Pro Glu Pro Ser Glu Thr Gly Ser	
280 285 290	
cca gaa agg aag ttg aca ccg ctt gaa cat ata aca tct ctt gat ttg	1027
Pro Glu Arg Lys Leu Thr Pro Leu Glu His Ile Thr Ser Ser Asp Leu	
295 300 305	
aaa ggt ggg ata ggt att aca gag gct cta cga ctt cag atg gaa gta	1075
Lys Gly Gly Ile Gly Ile Thr Glu Ala Leu Arg Leu Gln Met Glu Val	
310 315 320	
cag aag caa ctc cat gag cag ctc gag att caa aga aac ctg caa ctc	1123
Gln Lys Gln Leu His Glu Gln Leu Glu Ile Gln Arg Asn Leu Gln Leu	
325 330 335	
cga ata gaa gaa caa ggc aag tac ctg caa atg atg ttc gag aag caa	1171
Arg Ile Glu Glu Gln Gly Lys Tyr Leu Gln Met Met Phe Glu Lys Gln	
340 345 350 355	
aac tct ggt ctt acc aaa ggg aca gcc tca aca tca gat tcc gca gcc	1219
Asn Ser Gly Leu Thr Lys Gly Thr Ala Ser Thr Ser Asp Ser Ala Ala	
360 365 370	
aaa tct gaa caa gaa gac aag aag act gct gat tcg aag gag gtt cca	1267
Lys Ser Glu Gln Glu Asp Lys Lys Thr Ala Asp Ser Lys Glu Val Pro	
375 380 385	
gaa gaa gaa acc agg aaa tgt gag gaa cta gaa tct cca cag cca aag	1315
Glu Glu Glu Thr Arg Lys Cys Glu Glu Leu Glu Ser Pro Gln Pro Lys	
390 395 400	
cgt ccc aaa atc gat aat tga aagtattggt cttttgctggg ataattctcgg	1366
Arg Pro Lys Ile Asp Asn	

405

agtttcagag ttaacagtga tagagagaac gagctcttat cttgagggttc ttcaggactt 1426
ctctcgcgc cgcctctag 1444

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Met Glu Ala Arg Pro Val His Arg Ser Gly Ser Arg Asp Leu Thr Arg
1 5 10 15

Thr Ser Ser Ile Pro Ser Thr Gln Lys Pro Ser Pro Val Glu Asp Ser
20 25 30

Phe Met Arg Ser Asp Asn Asn Ser Gln Leu Met Ser Arg Pro Leu Gly
35 40 45

Gln Thr Tyr His Leu Leu Ser Ser Ser Asn Gly Gly Ala Val Gly His
50 55 60

Ile Cys Ser Ser Ser Ser Ser Ser Gly Phe Ala Thr Asn Leu His Tyr Ser
65 70 75 80

Thr Met Val Ser His Glu Lys Gln Gln His Tyr Thr Gly Ser Ser Ser
85 90 95

Asn Asn Ala Val Gln Thr Pro Ser Ser Asn Asn Asp Ser Ala Trp Cys His
100 105 110

Asp Ser Leu Pro Gly Gly Phe Leu Asp Phe His Glu Thr Asn Pro Ala
115 120 125

Ile Gln Asn Asn Cys Gln Ile Glu Asp Gly Gly Ile Ala Ala Ala Phe
130 135 140

Asp Asp Ile Gln Lys Arg Ser Asp Trp His Glu Trp Ala Asp His Leu
145 150 155 160

Ile Thr Asp Asp Asp Pro Leu Met Ser Thr Asn Trp Asn Asp Leu Leu
165 170 175

Leu Glu Thr Asn Ser Asn Ser Asp Ser Lys Asp Gln Lys Thr Leu Gln
180 185 190

Ile Pro Gln Pro Gln Ile Val Gln Gln Gln Pro Ser Pro Ser Val Glu
195 200 205

Leu Arg Pro Val Ser Thr Thr Ser Ser Asn Ser Asn Asn Gly Thr Gly
210 215 220

Lys Ala Arg Met Arg Trp Thr Pro Glu Leu His Glu Ala Phe Val Glu
225 230 235 240

Ala Val Asn Ser Leu Gly Gly Ser Glu Arg Ala Thr Pro Lys Gly Val
245 250 255

Leu Lys Ile Met Lys Val Glu Gly Leu Thr Ile Tyr His Val Lys Ser
260 265 270

His Leu Gln Lys Tyr Arg Thr Ala Arg Tyr Arg Pro Glu Pro Ser Glu
275 280 285

Thr Gly Ser Pro Glu Arg Lys Leu Thr Pro Leu Glu His Ile Thr Ser
290 295 300

Leu Asp Leu Lys Gly Gly Ile Gly Ile Thr Glu Ala Leu Arg Leu Gln
305 310 315 320

Met Glu Val Gln Lys Gln Leu His Glu Gln Leu Glu Ile Gln Arg Asn
325 330 335

Leu Gln Leu Arg Ile Glu Glu Gln Gly Lys Tyr Leu Gln Met Met Phe
340 345 350

Glu Lys Gln Asn Ser Gly Leu Thr Lys Gly Thr Ala Ser Thr Ser Asp
355 360 365

Ser Ala Ala Lys Ser Glu Gln Glu Asp Lys Lys Thr Ala Asp Ser Lys
370 375 380

Glu Val Pro Glu Glu Glu Thr Arg Lys Cys Glu Glu Leu Glu Ser Pro
385 390 395 400

Gln Pro Lys Arg Pro Lys Ile Asp Asn
405

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 <222> (87)..(923) <223> G2124

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 tatataaaga tctcgagaat agcatt atg aat atc gtc tct tgg aaa gat gca 113
 Met Asn Ile Val Ser Trp Lys Asp Ala
 1 5
 aac gac gaa gtt gca ggc ggc gct acg aca aga cgt gaa aga gaa gta 161
 Asn Asp Glu Val Ala Gly Gly Ala Thr Thr Arg Arg Glu Arg Glu Val
 10 15 20 25
 aaa gag gat caa gaa gaa acc gaa gtc aga gcc acc agt ggc aaa acc 209
 Lys Glu Asp Gln Glu Glu Thr Glu Val Arg Ala Thr Ser Gly Lys Thr
 30 35 40
 gta att aaa aag cag cct aca tcg atc tct tct tct tct tct tct tct tct 257
 Val Ile Lys Lys Lys Gln Pro Thr Ser Ile Ser Ser Ser Ser Ser Ser Ser Trp
 45 50 55
 atg aaa tcc aag gat ccg agg att gtt agg gtt tca cgc gcc ttt gga 305
 Met Lys Ser Lys Asp Pro Arg Ile Val Arg Val Ser Arg Ala Phe Gly
 60 65 70
 ggc aaa gac cgt cac agc aaa gtg tgt acg tta cgt gga cta cgt gac 353
 Gly Lys Asp Arg His Ser Lys Val Cys Thr Leu Arg Gly Leu Arg Asp
 75 80 85
 aga cgc gtg aga tta tca gtc cca acg gct att cag ctc tac gat ctt 401
 Arg Arg Val Arg Leu Ser Val Pro Thr Ala Ile Gln Leu Tyr Asp Leu
 90 95 100 105
 caa gaa cgg ctc ggt gtt gac cag cct agc aaa gcc gtt gac tgg ttg 449
 Gln Glu Arg Leu Gly Val Asp Gln Pro Ser Lys Ala Val Asp Trp Leu
 110 115 120
 ctt gat gca gct aaa gag gag atc gac gag cta cct ccg tta cct atc 497
 Leu Asp Ala Ala Lys Glu Glu Ile Asp Glu Leu Pro Pro Leu Pro Ile
 125 130 135
 tcg ccg gaa aat ttc agc atc ttc aac cat cat cag tcc ttc ttg aat 545
 Ser Pro Glu Asn Phe Ser Ile Phe Asn His His Gln Ser Phe Leu Asn
 140 145 150
 ctt ggt caa cgg ccc ggt caa gat ccg acc caa ctc ggg ttt aaa atc 593
 Leu Gly Gln Arg Pro Gly Gln Asp Pro Thr Gln Leu Gly Phe Lys Ile
 155 160 165
 aat gga tgt gta caa aag tct act act act agc cgc gaa gaa aac gat 641
 Asn Gly Cys Val Gln Lys Ser Thr Thr Thr Ser Arg Glu Glu Asn Asp
 170 175 180 185
 aga gag aaa gga gaa aac gat gtc gtt tac aca aac aat cat cat gtt 689
 Arg Glu Lys Gly Glu Asn Asp Val Val Tyr Thr Asn Asn His His Val
 190 195 200

ggg tct tat gga act tat cac aac ctg gaa cat cat cat cat cat cac 737
Gly Ser Tyr Gly Thr Tyr His Asn Leu Glu His His His His His
205 210 215

caa cat ttg agt tta cag gca gat tat cat agt cat caa cta cat agt 785
Gln His Leu Ser Leu Gln Ala Asp Tyr His Ser His Gln Leu His Ser
220 225 230

ctt gtc cca ttt cca tca caa att ttg gta tgt cca atg acg aca tca 833
Leu Val Pro Phe Pro Ser Gln Ile Leu Val Cys Pro Met Thr Thr Ser
235 240 245

cca aca act aca act ata caa tct ttg ttt cca tca tca tgc tca gct 881
Pro Thr Thr Thr Thr Ile Gln Ser Leu Phe Pro Ser Ser Ser Ser Ala
250 255 260 265

ggg tca ggg act atg gag aca tta gat ccg agg caa atg tag 923
Gly Ser Gly Thr Met Glu Thr Leu Asp Pro Arg Gln Met
270 275

caacaatggt ggtagagaca ttgataatcg gatgtcgtcg gtccaattca accgaactaa 983

tagcactaca acggctaaca tgctgaggca tctaggctcg gagcgttgta caagtagagg 1043

aagtgatcac catatgtgaa gttagattat tgaacacgata taattgttgt ttgatgtgtt 1103

cagaaataag gggacac 1120

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Met Asn Ile Val Ser Trp Lys Asp Ala Asn Asp Glu Val Ala Gly Gly
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Ala Thr Thr Arg Arg Glu Arg Glu Val Lys Glu Asp Gln Glu Glu Thr
20 25 30

Glu Val Arg Ala Thr Ser Gly Lys Thr Val Ile Lys Lys Gln Pro Thr
35 40 45

Ser Ile Ser Ser Ser Ser Ser Ser Trp Met Lys Ser Lys Asp Pro Arg
50 55 60

Ile Val Arg Val Ser Arg Ala Phe Gly Gly Lys Asp Arg His Ser Lys
65 70 75 80

Val Cys Thr Leu Arg Gly Leu Arg Asp Arg Arg Val Arg Leu Ser Val
85 90 95

Pro Thr Ala Ile Gln Leu Tyr Asp Leu Gln Glu Arg Leu Gly Val Asp

100 105 110
 Gln Pro Ser Lys Ala Val Asp Trp Leu Leu Asp Ala Ala Lys Glu Glu
 115 120 125
 Ile Asp Glu Leu Pro Pro Leu Pro Ile Ser Pro Glu Asn Phe Ser Ile
 130 135 140
 Phe Asn His His Gln Ser Phe Leu Asn Leu Gly Gln Arg Pro Gly Gln
 145 150 155 160
 Asp Pro Thr Gln Leu Gly Phe Lys Ile Asn Gly Cys Val Gln Lys Ser
 165 170 175
 Thr Thr Thr Ser Arg Glu Glu Asn Asp Arg Glu Lys Gly Glu Asn Asp
 180 185 190
 Val Val Tyr Thr Asn Asn His His Val Gly Ser Tyr Gly Thr Tyr His
 195 200 205
 Asn Leu Glu His His His His His His Gln His Leu Ser Leu Gln Ala
 210 215 220
 Asp Tyr His Ser His Gln Leu His Ser Leu Val Pro Phe Pro Ser Gln
 225 230 235 240
 Ile Leu Val Cys Pro Met Thr Thr Ser Pro Thr Thr Thr Thr Ile Gln
 245 250 255
 Ser Leu Phe Pro Ser Ser Ser Ser Ala Gly Ser Gly Thr Met Glu Thr
 260 265 270
 Leu Asp Pro Arg Gln Met
 275

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 <222> (89)..(784) <223> G2143

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 aacctataa attccacaaa aaaggagg atg gat aac tcc gac att cta atg 112
 Met Asp Asn Ser Asp Ile Leu Met
 1 5

atcgagggag ttgaatttag tatcatgaaa ctatgagagc atttttttta aatgttttta 904
 tctttccggg ttctgataat gtttgggatg gtttaattaac aattttaaaag tcagacaact 964
 tgggtgtaaa gactaaagaa taagcatagt ttatcaattt atcattacta aatgaaatag 1024

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Met Asp Asn Ser Asp Ile Leu Met Asn Met Met Met Gln Gln Met Glu
 1 5 10 15

Lys Leu Pro Glu His Phe Ser Asn Ser Asn Pro Asn Pro Asn Pro His
 20 25 30

Asn Ile Met Met Leu Ser Glu Ser Asn Thr His Pro Phe Phe Phe Asn
 35 40 45

Pro Thr His Ser His Leu Pro Phe Asp Gln Thr Met Pro His His Gln
 50 55 60

Pro Gly Leu Asn Phe Arg Tyr Ala Pro Ser Pro Ser Ser Ser Leu Pro
 65 70 75 80

Glu Lys Arg Gly Gly Cys Ser Asp Asn Ala Asn Met Ala Ala Met Arg
 85 90 95

Glu Met Ile Phe Arg Ile Ala Val Met Gln Pro Ile His Ile Asp Pro
 100 105 110

Glu Ser Val Lys Pro Pro Lys Arg Lys Asn Val Arg Ile Ser Lys Asp
 115 120 125

Pro Gln Ser Val Ala Ala Arg His Arg Arg Glu Arg Ile Ser Glu Arg
 130 135 140

Ile Arg Ile Leu Gln Arg Leu Val Pro Gly Gly Thr Lys Met Asp Thr
 145 150 155 160

Ala Ser Met Leu Asp Glu Ala Ile His Tyr Val Lys Phe Leu Lys Lys
 165 170 175

Gln Val Gln Ser Leu Glu Glu His Ala Val Val Asn Gly Gly Gly Met
 180 185 190

Thr Ala Val Ala Gly Gly Ala Leu Ala Gly Thr Val Gly Gly Gly Tyr
195 200 205

Gly Gly Lys Gly Cys Gly Ile Met Arg Ser Asp His His Gln Met Leu
210 215 220

Gly Asn Ala Gln Ile Leu Arg
225 230

<210> 287 <211> 1000 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (143)..(934) <223> G2509

<400> 287
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cctcaattcc aaatcttaaa ccttaaattt acagacacaa tcgagatcac ctgaaaaaag 120

agggtttaaag attttagcaa ag atg gcg aat tca gga aat tat gga aag agg 172
Met Ala Asn Ser Gly Asn Tyr Gly Lys Arg
1 5 10

ccc ttt cga ggc gat gaa tcg gat gaa aag aaa gaa gcc gat gat gat 220
Pro Phe Arg Gly Asp Glu Ser Asp Glu Lys Lys Glu Ala Asp Asp Asp
15 20 25

gag aac ata ttc cct ttc ttc tct gcc cga toc caa tat gac atg cgt 268
Glu Asn Ile Phe Pro Phe Phe Ser Ala Arg Ser Gln Tyr Asp Met Arg
30 35 40

gcc atg gtc tca gcc ttg act caa gtc att gga aac caa agc agc tct 316
Ala Met Val Ser Ala Leu Thr Gln Val Ile Gly Asn Gln Ser Ser Ser
45 50 55

cat gat aat aac caa cat caa cct gtt gtg tat aat caa caa gat cct 364
His Asp Asn Asn Gln His Gln Pro Val Val Tyr Asn Gln Gln Asp Pro
60 65 70

aac cca ccg gct cct cca act caa gat caa ggg cta ttg agg aag agg 412
Asn Pro Pro Ala Pro Pro Thr Gln Asp Gln Gly Leu Leu Arg Lys Arg
75 80 85 90

cac tat aga ggg gta aga caa cga cca tgg gga aag tgg gca gct gaa 460
His Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Trp Ala Ala Glu
95 100 105

att cgg gat ccg caa aag gca gca cgg gtg tgg ctc ggg aca ttt gag 508
Ile Arg Asp Pro Gln Lys Ala Ala Arg Val Trp Leu Gly Thr Phe Glu
110 115 120

act gct gaa gct gcg gct tta gct tat gat aac gca gct ctt aag ttc 556
Thr Ala Glu Ala Ala Ala Leu Ala Tyr Asp Asn Ala Ala Leu Lys Phe
125 130 135

aaa gga agc aaa gcc aaa ctc aat ttc cct gag aga gct caa cta gca 604
 Lys Gly Ser Lys Ala Lys Leu Asn Phe Pro Glu Arg Ala Gln Leu Ala
 140 145 150
 agt aac act agt aca act acc ggt cca cca aac tat tat tct tct aat 652
 Ser Asn Thr Ser Thr Thr Gly Pro Pro Asn Tyr Tyr Ser Ser Asn
 155 160 165 170
 aat caa att tac tac tca aat ccg cag act aat ccg caa acc ata cct 700
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 Tyr Phe Asn Gln Tyr Tyr Tyr Asn Gln Tyr Leu His Gln Gly Gly Asn
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 Ser Asn Asp Ala Leu Ser Tyr Ser Leu Ala Gly Gly Glu Thr Gly Gly
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 Ser Met Tyr Asn His Gln Thr Leu Ser Thr Thr Asn Ser Ser Ser Ser
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 Gly Gly Ser Ser Arg Gln Gln Asp Asp Glu Gln Asp Tyr Ala Arg Tyr
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 Leu Arg Phe Gly Asp Ser Ser Pro Pro Asn Ser Gly Phe
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Gln Arg Pro Trp Gly Lys Trp Ala Ala Glu Ile Arg Asp Pro Gln Lys
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Leu Ala Tyr Asp Asn Ala Ala Leu Lys Phe Lys Gly Ser Lys Ala Lys
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Leu Asn Phe Pro Glu Arg Ala Gln Leu Ala Ser Asn Thr Ser Thr Thr
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Thr Gly Pro Pro Asn Tyr Tyr Ser Ser Asn Asn Gln Ile Tyr Tyr Ser
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Asn Pro Gln Thr Asn Pro Gln Thr Ile Pro Tyr Phe Asn Gln Tyr Tyr
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Tyr Asn Gln Tyr Leu His Gln Gly Gly Asn Ser Asn Asp Ala Leu Ser
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Tyr Ser Leu Ala Gly Gly Glu Thr Gly Gly Ser Met Tyr Asn His Gln
210 215 220

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	Met	Glu	Gly	Leu	Glu	Ser	Val	
	1				5			
tac gct caa gct atg tat gga atg aca cga gag agc aaa atc atg gag								162
Tyr Ala Gln Ala Met Tyr Gly Met Thr Arg Glu Ser Lys Ile Met Glu								
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His Gln Gly Ser Asp Leu Ile Trp Gly Gly Asn Glu Leu Met Ala Arg								
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gaa ctc tgt tct tct tct tct tat cac cac caa ctc att aat cag aat								258
Glu Leu Cys Ser Ser Ser Ser Tyr His His Gln Leu Ile Asn Pro Asn								
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Leu Ser Ser Cys Phe Met Ser Asp Leu Gly Val Leu Gly Glu Ile Gln								
60 65 70								
cag cag caa cat gtt ggc aac aga gct agc tcg ata gat cca tca tca								354
Gln Gln Gln His Val Gly Asn Arg Ala Ser Ser Ile Asp Pro Ser Ser								
75 80 85								
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Leu Asp Cys Leu Leu Ser Ala Thr Ser Asn Ser Asn Asn Thr Ser Thr								
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Glu Asp Asp Glu Gly Ile Ser Val Leu Phe Ser Asp Cys Gln Thr Leu								
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Trp Ser Phe Gly Gly Val Ser Ser Ala Glu Ser Glu Asn Arg Glu Ile								
120 125 130 135								
act act gag acg aca aca acg ata aag cct aag cct ttg aag aga aac								546
Thr Thr Glu Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr								
140 145 150								
aga gga gga gat gga gga act act gag act aca aca aca aca aca aaa								594
Arg Gly Gly Asp Gly Gly Thr Thr Thr Thr Thr Thr Thr Thr Thr								
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Pro Lys Ser Leu Lys Arg Asn Arg Gly Asp Glu Thr Gly Ser His Phe								
170 175 180								
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Ser Leu Val His Pro Gln Asp Asp Ser Glu Lys Gly Gly Phe Lys Leu								
185 190 195								
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Ile Tyr Asp Glu Asn Gln Ser Lys Ser Lys Lys Pro Arg Thr Glu Lys								
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Glu Arg Gly Gly Ser Ser Asn Ile Ser Phe Gln His Ser Thr Cys Leu								

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Ser Asp Asn Val Glu Pro Asp Ala Glu Ala Ile Ala Gln Met Lys Glu	235	240	245	
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Met Ile Tyr Arg Ala Ala Ala Phe Arg Pro Val Asn Phe Gly Leu Glu	250	255	260	
att gtg gag aag cct aag agg aag aac gtc aag ata tcg acg gat cct				930
Ile Val Glu Lys Pro Lys Arg Lys Asn Val Lys Ile Ser Thr Asp Pro	265	270	275	
caa acg gtt gca gcg aga cag aga agg gag agg ata agt gag aag att				978
Gln Thr Val Ala Ala Arg Gln Arg Arg Glu Arg Ile Ser Glu Lys Ile	280	285	290	295
agg gtt tta caa aca ttg gtt cca ggt ggg acg aag atg gat act gca				1026
Arg Val Leu Gln Thr Leu Val Pro Gly Gly Thr Lys Met Asp Thr Ala	300	305	310	
tca atg ctt gat gaa gct gct aat tat ctc aag ttc ctt aga gca caa				1074
Ser Met Leu Asp Glu Ala Ala Asn Tyr Leu Lys Phe Leu Arg Ala Gln	315	320	325	
gta aaa gct tta gaa aac ttg aga ccc aag ctt gac caa acc aat ctc				1122
Val Lys Ala Leu Glu Asn Leu Arg Pro Lys Leu Asp Gln Thr Asn Leu	330	335	340	
tct ttc tct tct gct cct aca tcg ttt cca tta ttc cac cca tct ttt				1170
Ser Phe Ser Ser Ala Pro Thr Ser Phe Pro Leu Phe His Pro Ser Phe	345	350	355	
ctt cca ttg caa aat cct aat caa atc cat cat cca gag tgt tga				1215
Leu Pro Leu Gln Asn Pro Asn Gln Ile His His Pro Glu Cys	360	365	370	
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ctttccagtc ttgtttttgc atttcttttt atataaagtt tgtattttat atagaatctg				1395
tggaattcga gggttgaaat attgtgaaaa acagagccgc aagagggttaa ttacagtctc				1455
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Arg Glu Ser Lys Ile Met Glu His Gln Gly Ser Asp Leu Ile Trp Gly	20	25	30	

Gly Asn Glu Leu Met Ala Arg Glu Leu Cys Ser Ser Ser Ser Tyr His
 35 40 45

His Gln Leu Ile Asn Pro Asn Leu Ser Ser Cys Phe Met Ser Asp Leu
 50 55 60

Gly Val Leu Gly Glu Ile Gln Gln Gln Gln His Val Gly Asn Arg Ala
 65 70 75 80

Ser Ser Ile Asp Pro Ser Ser Leu Asp Cys Leu Leu Ser Ala Thr Ser
 85 90 95

Asn Ser Asn Asn Thr Ser Thr Glu Asp Asp Glu Gly Ile Ser Val Leu
 100 105 110

Phe Ser Asp Cys Gln Thr Leu Trp Ser Phe Gly Gly Val Ser Ser Ala
 115 120 125

Glu Ser Glu Asn Arg Glu Ile Thr Thr Glu Thr Thr Thr Thr Ile Lys
 130 135 140

Pro Lys Pro Leu Lys Arg Asn Arg Gly Gly Asp Gly Gly Thr Thr Glu
 145 150 155 160

Thr Thr Thr Thr Thr Thr Lys Pro Lys Ser Leu Lys Arg Asn Arg Gly
 165 170 175

Asp Glu Thr Gly Ser His Phe Ser Leu Val His Pro Gln Asp Asp Ser
 180 185 190

Glu Lys Gly Gly Phe Lys Leu Ile Tyr Asp Glu Asn Gln Ser Lys Ser
 195 200 205

Lys Lys Pro Arg Thr Glu Lys Glu Arg Gly Gly Ser Ser Asn Ile Ser
 210 215 220

Phe Gln His Ser Thr Cys Leu Ser Asp Asn Val Glu Pro Asp Ala Glu
 225 230 235 240

Ala Ile Ala Gln Met Lys Glu Met Ile Tyr Arg Ala Ala Ala Phe Arg
 245 250 255

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245 250 255

cgt gag aag aag gtt tcg tcg cca gat cta tcg gag aaa gtg aag gcg 1235
Arg Glu Lys Lys Val Ser Ser Pro Asp Leu Ser Glu Lys Val Lys Ala
260 265 270

gag gag aat tcg gtt tcg atc ggt gga tct cca cgg gtg acg gag ttt 1283
Glu Glu Asn Ser Val Ser Ile Gly Gly Ser Pro Val Thr Glu Phe
275 280 285

gaa gag tcc acc gct gga tct tcg cgg ttg tgg gac ttg acg ttc gct 1331
Glu Glu Ser Thr Ala Gly Ser Ser Pro Leu Ser Asp Leu Thr Phe Ala
290 295 300 305

gac cgg gag gag cgg cgg cag tgg aac gag acg ttc tgg ttg gag aag 1379
Asp Pro Glu Glu Pro Pro Gln Trp Asn Glu Thr Phe Ser Leu Glu Lys
310 315 320

tat cgg tgg tac gag atc gat tgg gat tgg att cta gct tag 1421
Tyr Pro Ser Tyr Glu Ile Asp Trp Asp Ser Ile Leu Ala
325 330

gggcaaaaata ggaaattcag ccgcttgcaa tggagttttt gtgaaattgc atgactggcc 1481
caagagtaat taattaaata tggattagt ttaaatttcg tatgttaata tttgtattat 1541
ggtttgtatt agtctctctg tgcgggtcca gcttgcggtt ttttgtcagg ctgcaccatg 1601
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Ser Gly Gly Glu Leu Met Asp Ala Leu Val Pro Phe Ile Lys Ser Val
20 25 30

Ser Asp Ser Pro Ser Ser Ser Ser Ala Ala Ser Ala Ser Ala Phe Leu
35 40 45

His Pro Ser Ala Phe Ser Leu Pro Pro Leu Pro Gly Tyr Tyr Pro Asp
50 55 60

Ser Thr Phe Leu Thr Gln Pro Phe Ser Tyr Gly Ser Asp Leu Gln Gln
65 70 75 80

Thr Gly Ser Leu Ile Gly Leu Asn Asn Leu Ser Ser Ser Gln Ile His

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Gln Ile Gln Ser Gln Ile His His Pro Leu Pro Pro Thr His His Asn
100 105 110

Asn Asn Asn Ser Phe Ser Asn Leu Leu Ser Pro Lys Pro Leu Leu Met
115 120 125

Lys Gln Ser Gly Val Ala Gly Ser Cys Phe Ala Tyr Gly Ser Gly Val
130 135 140

Pro Ser Lys Pro Thr Lys Leu Tyr Arg Gly Val Arg Gln Arg His Trp
145 150 155 160

Gly Lys Trp Val Ala Glu Ile Arg Leu Pro Arg Asn Arg Thr Arg Leu
165 170 175

Trp Leu Gly Thr Phe Asp Thr Ala Glu Glu Ala Ala Leu Ala Tyr Asp
180 185 190

Lys Ala Ala Tyr Lys Leu Arg Gly Asp Phe Ala Arg Leu Asn Phe Pro
195 200 205

Asn Leu Arg His Asn Gly Phe His Ile Gly Gly Asp Phe Gly Glu Tyr
210 215 220

Lys Pro Leu His Ser Ser Val Asp Ala Lys Leu Glu Ala Ile Cys Lys
225 230 235 240

Ser Met Ala Glu Thr Gln Lys Gln Asp Lys Ser Thr Lys Ser Ser Lys
245 250 255

Lys Arg Glu Lys Lys Val Ser Ser Pro Asp Leu Ser Glu Lys Val Lys
260 265 270

Ala Glu Glu Asn Ser Val Ser Ile Gly Gly Ser Pro Pro Val Thr Glu
275 280 285

Phe Glu Glu Ser Thr Ala Gly Ser Ser Pro Leu Ser Asp Leu Thr Phe
290 295 300

Ala Asp Pro Glu Glu Pro Pro Gln Trp Asn Glu Thr Phe Ser Leu Glu
305 310 315 320

Lys Tyr Pro Ser Tyr Glu Ile Asp Trp Asp Ser Ile Leu Ala
325 330

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Met Thr Ser Leu Asn Ser Ser Ala Ser Pro 10
1 5
aca tca tcg tca tca gac caa tct gat gca act act aca aca agc acc 99
Thr Ser Ser Ser Ser Asp Gln Ser Asp Ala Thr Thr Thr Thr Ser Thr 20 25
15
cac ttg tct gaa gaa gaa gct cca ccc aga aac aac aac aca aga aag 147
His Leu Ser Glu Glu Glu Ala Pro Pro Arg Asn Asn Asn Thr Arg Lys 30 35 40
aga agg aga gat tct tct tct gct tct tca tct tct tca atg caa cat 195
Arg Arg Arg Asp Ser Ser Ser Ala Ser Ser Ser Ser Ser Met Gln His 45 50 55
cct gtt tac aga ggt gtg cgg atg aga agt tgg ggc aaa tgg gtc tcc 243
Pro Val Tyr Arg Gly Val Arg Met Arg Ser Trp Gly Lys Trp Val Ser 60 65 70
gag atc cga caa cct cgt aag aaa act cgt att tgg ctc ggc act ttt 291
Glu Ile Arg Gln Pro Arg Lys Lys Thr Arg Ile Trp Leu Gly Thr Phe 75 80 85 90
gtc acc gct gat atg gct gct cgt gct cac gac gtc gct gct ctc acc 339
Val Thr Ala Asp Met Ala Ala Arg Ala His Asp Val Ala Ala Leu Thr 95 100 105
atc aaa ggc tcc tcc gcc gtc tta aat ttc cct gag ctt gct tct ctc 387
Ile Lys Gly Ser Ser Ala Val Leu Asn Phe Pro Glu Leu Ala Ser Leu 110 115 120
ttc cct cgt ccg gcg tca tca tcg ccg cat gat atc cag aca gcc gcc 435
Phe Pro Arg Pro Ala Ser Ser Pro His Asp Ile Gln Thr Ala Ala 125 130 135
gca gaa gcc gcc gcc atg gtg gtc gaa gaa aaa ctg tta gag aag gat 483
Ala Glu Ala Ala Ala Met Val Val Glu Glu Lys Leu Leu Glu Lys Asp 140 145 150
gag gct ccg gag gcc cca cct tcg tcg gaa tct tct tac gtg gcg gcg 531
Glu Ala Pro Glu Ala Pro Pro Ser Ser Glu Ser Ser Tyr Val Ala Ala 155 160 165 170
gag tca gag gat gag gag agg ttg gag aaa att gtg gag ctg cct aac 579
Glu Ser Glu Asp Glu Glu Arg Leu Glu Lys Ile Val Glu Leu Pro Asn 175 180 185

att gaa gaa gga agt tat gac gag agt gtg aca tca cgt gct gat ctg 627
 ile Glu Glu Gly Ser Tyr Asp Glu Ser Val Thr Ser Arg Ala Asp Leu
 190 195 200

gct tat tct gag ccg ttc gat tgt tgg gtg tat cct ccg gtt atg gat 675
 Ala Tyr Ser Glu Pro Phe Asp Cys Trp Val Tyr Pro Pro Val Met Asp
 205 210 215

ttt tat gaa gaa ata tcg gag ttt aat ttc gtg gaa ttg tgg agc ttt 723
 Phe Tyr Glu Glu Ile Ser Glu Phe Asn Phe Val Glu Leu Trp Ser Phe
 220 225 230

aat cac taa ttaagttagg aaagtgcatt atattgcaat attgcatcat 772
 Asn His
 235

agataacatt tgtattttctt ttcttttttgt acggatacgt agcatatgct actatactag 832

ggctagtgtg ccaaatattg taaaatatac ttattaatat ttatgtaaat gtgtaata 892

tataacatac aattattgtg agtttggaaa ttggaaacta tcgttacgca atgtttctgt 952

aaaaaaaa aaaaaaaa 970

<210> 294 <211> 236 <212> PRT <213> Arabidopsis thaliana <400> 294

Met Thr Ser Leu Asn Ser Ser Ala Ser Pro Thr Ser Ser Ser Ser Asp
 1 5 10 15

Gln Ser Asp Ala Thr Thr Thr Thr Ser Thr His Leu Ser Glu Glu Glu
 20 25 30

Ala Pro Pro Arg Asn Asn Asn Thr Arg Lys Arg Arg Arg Asp Ser Ser
 35 40 45

Ser Ala Ser Ser Ser Ser Ser Met Gln His Pro Val Tyr Arg Gly Val
 50 55 60

Arg Met Arg Ser Trp Gly Lys Trp Val Ser Glu Ile Arg Gln Pro Arg
 65 70 75 80

Lys Lys Thr Arg Ile Trp Leu Gly Thr Phe Val Thr Ala Asp Met Ala
 85 90 95

Ala Arg Ala His Asp Val Ala Ala Leu Thr Ile Lys Gly Ser Ser Ala
 100 105 110

Val Leu Asn Phe Pro Glu Leu Ala Ser Leu Phe Pro Arg Pro Ala Ser

115

120

125

Ser Ser Pro His Asp Ile Gln Thr Ala Ala Ala Glu Ala Ala Ala Met
130 135 140

Val Val Glu Glu Lys Leu Leu Glu Lys Asp Glu Ala Pro Glu Ala Pro
145 150 155 160

Pro Ser Ser Glu Ser Ser Tyr Val Ala Ala Glu Ser Glu Asp Glu Glu
165 170 175

Arg Leu Glu Lys Ile Val Glu Leu Pro Asn Ile Glu Glu Gly Ser Tyr
180 185 190

Asp Glu Ser Val Thr Ser Arg Ala Asp Leu Ala Tyr Ser Glu Pro Phe
195 200 205

Asp Cys Trp Val Tyr Pro Pro Val Met Asp Phe Tyr Glu Glu Ile Ser
210 215 220

Glu Phe Asn Phe Val Glu Leu Trp Ser Phe Asn His
225 230 235

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ttctctgttt tttaaagcca ttgatagat tgtttccggt aaagctcagc gagagaagaa 180

gaagaacaac a atg gag ttt aca gat ttc tca aag acg agt ttt tac tac 230
Met Glu Phe Thr Asp Phe Ser Lys Thr Ser Phe Tyr Tyr
1 5 10

cgc tcg tca caa agc gtt tgg gat ttc gga gat tta gcg gcg gcg gag 278
Pro Ser Ser Gln Ser Val Trp Asp Phe Gly Asp Leu Ala Ala Ala Glu
15 20 25

agg cat tct tta ggg ttc atg gag tta tta agt tct cag cag cat caa 326
Arg His Ser Leu Gly Phe Met Glu Leu Leu Ser Ser Gln Gln His Gln
30 35 40 45

gac ttt gct act gtt tct cct cat tcc ttc ctt ctc caa acg tct caa 374
Asp Phe Ala Thr Val Ser Pro His Ser Phe Leu Leu Gln Thr Ser Gln
50 55 60

cgc caa acg caa acg caa cca tcg gcg aag ctg tct tca agt atc att	422
Pro Gln Thr Gln Thr Gln Pro Ser Ala Lys Leu Ser Ser Ser Ile Ile	
65 70 75	
caa gct cca ccg tca gag caa tta gtg acg tca aag gtg gag tct ttg	470
Gln Ala Pro Pro Ser Glu Gln Leu Val Thr Ser Lys Val Glu Ser Leu	
80 85 90	
tgt tcg gat cat ttg ttg ata aac cca ccg gcg act cct aac tcg tca	518
Cys Ser Asp His Leu Leu Ile Asn Pro Pro Ala Thr Pro Asn Ser Ser	
95 100 105	
tcg att tcg tct gct tca agc gag gct cta aat gaa gag aaa ccg aaa	566
Ser Ile Ser Ser Ala Ser Ser Glu Ala Leu Asn Glu Glu Lys Pro Lys	
110 115 120 125	
aca gaa gac aat gaa gaa gaa gga ggt gaa gat caa caa gag aag agt	614
Thr Glu Asp Asn Glu Glu Gly Gly Glu Asp Gln Gln Lys Ser	
130 135 140	
cat act aag aaa cag ttg aaa gca aag aag aat aat cag aag aga cag	662
His Thr Lys Lys Gln Leu Lys Ala Lys Lys Asn Asn Gln Arg Gln	
145 150 155	
aga gag gca aga gtc gca ttc atg aca aag agt gaa gtt gat cat ctc	710
Arg Glu Ala Arg Val Ala Phe Met Thr Lys Ser Glu Val Asp His Leu	
160 165 170	
gaa gat ggt tat cgc tgg cga aaa tat ggt caa aaa gct gtc aaa aac	758
Glu Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Ala Val Lys Asn	
175 180 185	
agt cct ttt ccc agg agt tac tac cgt tgc aca acg gct toa tgt aac	806
Ser Pro Phe Pro Arg Ser Tyr Tyr Arg Cys Thr Thr Ala Ser Cys Asn	
190 195 200 205	
gtg aag aag aga gtg gag aga tca ttc aga gat cca agc act gtg gtt	854
Val Lys Lys Arg Val Glu Arg Ser Phe Arg Asp Pro Ser Thr Val Val	
210 215 220	
aca acc tac gaa ggt caa cac act cac att agt cca ctc acg tct cgt	902
Thr Thr Tyr Glu Gly Gln His Thr His Ile Ser Pro Leu Thr Ser Arg	
225 230 235	
cct att tcc act gga ggt ttc ttc gga tcg tca gga gct gct tcg agt	950
Pro Ile Ser Thr Gly Gly Phe Phe Gly Ser Ser Gly Ala Ala Ser Ser	
240 245 250	
ctc ggt aat ggt tgc ttt ggg ttt cct att gat ggc tcc acg tta atc	998
Leu Gly Asn Gly Cys Phe Gly Phe Pro Ile Asp Gly Ser Thr Leu Ile	
255 260 265	
tct cct cag ttc caa cag ctt gtc caa tac cat cac caa cag cag caa	1046
Ser Pro Gln Phe Gln Gln Leu Val Gln Tyr His His Gln Gln Gln Gln	
270 275 280 285	
caa gaa ctc atg tct tgt ttt gga gga gtc aac gag tac ctt aat agc	1094

Gln Glu Leu Met Ser Cys Phe Gly Gly Val Asn Glu Tyr Leu Asn Ser
290 295 300

cac gct aat gag tat ggt gat gat aat cgt gtg aag aag agt cga gtt 1142
His Ala Asn Glu Tyr Gly Asp Asp Asn Arg Val Lys Lys Ser Arg Val
305 310 315

ttg gtt aaa gat aat gga ctt ctg caa gat gtt gtt ccg tct cat atg 1190
Leu Val Lys Asp Asn Gly Leu Leu Gln Asp Val Val Pro Ser His Met
320 325 330

ttg aag gaa gag tag tagtatatat atagtcttat agttttaato tagttttttt 1245
Leu Lys Glu Glu
335

ttgtataatt gtctaaaaga aacggatctt ttgttctgat gaagaagatg ttttcttatg 1305

gttctgaaat cgtaaggtaa tgatgattgt accaagccga gaaagtactt gtgattttca 1365

ccattgaatc actataaatg taattttttat ttactgtgaa aaaaaaaaaa aaa 1418

<210> 296 <211> 337 <212> PRT <213> Arabidopsis thaliana <400> 296

Met Glu Phe Thr Asp Phe Ser Lys Thr Ser Phe Tyr Tyr Pro Ser Ser
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Gln Ser Val Trp Asp Phe Gly Asp Leu Ala Ala Ala Glu Arg His Ser
20 25 30

Leu Gly Phe Met Glu Leu Leu Ser Ser Gln Gln His Gln Asp Phe Ala
35 40 45

Thr Val Ser Pro His Ser Phe Leu Leu Gln Thr Ser Gln Pro Gln Thr
50 55 60

Gln Thr Gln Pro Ser Ala Lys Leu Ser Ser Ser Ile Ile Gln Ala Pro
65 70 75 80

Pro Ser Glu Gln Leu Val Thr Ser Lys Val Glu Ser Leu Cys Ser Asp
85 90 95

His Leu Leu Ile Asn Pro Pro Ala Thr Pro Asn Ser Ser Ser Ile Ser
100 105 110

Ser Ala Ser Ser Glu Ala Leu Asn Glu Glu Lys Pro Lys Thr Glu Asp
115 120 125

Asn Glu Glu Glu Gly Gly Glu Asp Gln Gln Glu Lys Ser His Thr Lys

130		135		140
Lys Gln Leu Lys Ala	Lys Lys Asn Asn Gln Lys Arg Gln Arg Glu Ala			
145	150	155		160
Arg Val Ala Phe Met Thr Lys Ser Glu Val Asp His Leu Glu Asp Gly				
	165	170		175
Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Ala Val Lys Asn Ser Pro Phe				
	180	185		190
Pro Arg Ser Tyr Tyr Arg Cys Thr Thr Ala Ser Cys Asn Val Lys Lys				
	195	200		205
Arg Val Glu Arg Ser Phe Arg Asp Pro Ser Thr Val Val Thr Thr Tyr				
	210	215		220
Glu Gly Gln His Thr His Ile Ser Pro Leu Thr Ser Arg Pro Ile Ser				
	225	230		235
Thr Gly Gly Phe Phe Gly Ser Ser Gly Ala Ala Ser Ser Leu Gly Asn				
	245	250		255
Gly Cys Phe Gly Phe Pro Ile Asp Gly Ser Thr Leu Ile Ser Pro Gln				
	260	265		270
Phe Gln Gln Leu Val Gln Tyr His His Gln Gln Gln Gln Glu Leu				
	275	280		285
Met Ser Cys Phe Gly Gly Val Asn Glu Tyr Leu Asn Ser His Ala Asn				
	290	295		300
Glu Tyr Gly Asp Asp Asn Arg Val Lys Lys Ser Arg Val Leu Val Lys				
	305	310		315
Asp Asn Gly Leu Leu Gln Asp Val Val Pro Ser His Met Leu Lys Glu				
	325	330		335
Glu				

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 <222> (1)..(780) <223> G363

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Met	Arg	Pro	Ile	Leu	Asp	Leu	Glu	Ile	Glu	Ala	Ser	Ser	Gly	Ser	Ser	
5																
agc	agc	caa	gtg	gcc	tca	aac	ttg	tct	ccg	gtt	ggg	gaa	gat	tac	aaa	96
Ser	Ser	Gln	Val	Ala	Ser	Asn	Leu	Ser	Pro	Val	Gly	Glu	Asp	Tyr	Lys	
20																
cca	atc	tcg	ctg	aat	ctt	agc	ctc	agt	ttc	aac	aac	aac	aac	aac	aat	144
Pro	Ile	Ser	Leu	Asn	Leu	Ser	Leu	Ser	Phe	Asn	Asn	Asn	Asn	Asn	Asn	
35																
aat	ctg	gat	ctt	gaa	tca	tcg	tct	ttg	acg	ctg	cca	ctt	tcg	agc	acg	192
Asn	Leu	Asp	Leu	Glu	Ser	Ser	Ser	Leu	Thr	Leu	Pro	Leu	Ser	Ser	Thr	
50																
agt	gag	agt	agt	aac	ccg	gag	cag	cag	cag	caa	caa	caa	cca	tct	gta	240
Ser	Glu	Ser	Ser	Asn	Pro	Glu	Gln	Gln	Gln	Gln	Gln	Gln	Pro	Ser	Val	
65																
tca	aag	aga	gtc	ttc	tct	tgt	aac	tac	tgc	caa	agg	aag	ttc	tat	agc	288
Ser	Lys	Arg	Val	Phe	Ser	Cys	Asn	Tyr	Cys	Gln	Arg	Lys	Phe	Tyr	Ser	
85																
tct	caa	gcg	cta	ggt	ggt	cac	caa	aac	gct	cac	aaa	cgt	gag	aga	aca	336
Leu	Ala	Leu	Gly	Gly	His	Gln	Gln	Ala	Ala	His	Lys	Arg	Glu	Arg	Thr	
100																
ctc	gcc	aaa	cgc	gct	atg	cta	tgg	gtc	ttg	ctg	ggg	tct	tcc	ccg	gta	384
Leu	Ala	Lys	Arg	Ala	Met	Leu	Trp	Val	Leu	Leu	Gly	Ser	Ser	Pro	Val	
115																
gag	gat	caa	gta	gca	att	atg	cgg	ctg	ctg	cca	cag	cag	ccg	ctc	tcg	432
Glu	Asp	Gln	Val	Ala	Ile	Met	Arg	Leu	Leu	Pro	Gln	Gln	Pro	Leu	Ser	
130																
tgt	ttg	ccg	ctt	cac	gga	agc	gga	aac	ggg	aac	atg	aca	tcg	ttc	agg	480
Cys	Leu	Pro	Leu	His	Gly	Ser	Gly	Asn	Gly	Asn	Met	Thr	Ser	Phe	Arg	
145																
act	ttg	gga	atc	cgg	gca	cat	tcc	tcg	gcg	cac	gac	gtc	agc	atg	aca	528
Thr	Leu	Gly	Ile	Arg	Ala	His	Ser	Ser	Ser	Ala	His	Asp	Val	Ser	Met	
165																
agg	cag	aca	cca	gaa	aca	ctt	att	aga	aac	att	gcc	agg	ttc	aac	cag	576
Arg	Gln	Thr	Pro	Glu	Thr	Leu	Ile	Arg	Asn	Ile	Ala	Arg	Phe	Asn	Gln	
180																
ggg	tat	ttc	ggt	aat	tgt	ata	cct	ttt	tac	gtg	gag	gac	gac	gag	gcc	624
Gly	Tyr	Phe	Gly	Asn	Cys	Ile	Pro	Phe	Tyr	Val	Glu	Asp	Asp	Glu	Ala	
195																
gag	atg	ctc	tgg	ccg	ggg	agt	ttc	cgg	caa	gct	acg	aat	gcg	gtt	gcg	672
Glu	Met	Leu	Trp	Pro	Gly	Ser	Phe	Arg	Gln	Ala	Thr	Asn	Ala	Val	Ala	
210																

gtt gaa gcg ggt aat gat aat tta ggt gaa aga aaa atg gat ttc ttg 720
 Val Glu Ala Gly Asn Asp Asn Leu Gly Glu Arg Lys Met Asp Phe Leu
 225 230 235 240

gac gtc aag caa gcg atg gat atg gaa agt tct ctt cca gat cta acc 768
 Asp Val Lys Gln Ala Met Asp Met Glu Ser Ser Leu Pro Asp Leu Thr
 245 250 255

ttg aag ctt tga 780
 Leu Lys Leu

<210> 298 <211> 259 <212> PRT <213> Arabidopsis thaliana <400> 298

Met Arg Pro Ile Leu Asp Leu Glu Ile Glu Ala Ser Ser Gly Ser Ser
 1 5 10 15

Ser Ser Gln Val Ala Ser Asn Leu Ser Pro Val Gly Glu Asp Tyr Lys
 20 25 30

Pro Ile Ser Leu Asn Leu Ser Leu Ser Phe Asn Asn Asn Asn Asn Asn
 35 40 45

Asn Leu Asp Leu Glu Ser Ser Ser Leu Thr Leu Pro Leu Ser Ser Thr
 50 55 60

Ser Glu Ser Ser Asn Pro Glu Gln Gln Gln Gln Gln Gln Pro Ser Val
 65 70 75 80

Ser Lys Arg Val Phe Ser Cys Asn Tyr Cys Gln Arg Lys Phe Tyr Ser
 85 90 95

Ser Gln Ala Leu Gly Gly His Gln Asn Ala His Lys Arg Glu Arg Thr
 100 105 110

Leu Ala Lys Arg Ala Met Leu Trp Val Leu Leu Gly Ser Ser Pro Val
 115 120 125

Glu Asp Gln Val Ala Ile Met Arg Leu Leu Pro Gln Gln Pro Leu Ser
 130 135 140

Cys Leu Pro Leu His Gly Ser Gly Asn Gly Asn Met Thr Ser Phe Arg
 145 150 155 160

Thr Leu Gly Ile Arg Ala His Ser Ser Ala His Asp Val Ser Met Thr

	165		170		175	
Arg Gln Thr Pro Glu Thr Leu Ile Arg Asn Ile Ala Arg Phe Asn Gln	180		185		190	
Gly Tyr Phe Gly Asn Cys Ile Pro Phe Tyr Val Glu Asp Asp Glu Ala	195		200		205	
Glu Met Leu Trp Pro Gly Ser Phe Arg Gln Ala Thr Asn Ala Val Ala	210		215		220	
Val Glu Ala Gly Asn Asp Asn Leu Gly Glu Arg Lys Met Asp Phe Leu	225		230		235	240
Asp Val Lys Gln Ala Met Asp Met Glu Ser Ser Leu Pro Asp Leu Thr	245		250		255	
Leu Lys Leu						
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ttctctcgaa atctctctca acaaaccag aaactttcct tgattcgcaa gcttttcttc						180
cttttatatt cttcattttg atgcgaatat agagagagtc cataaaagaa acagta atg						239
					Met	
					1	
gac gaa tat att gat ttc cga cca ttg aag tac aca gag cac aag act						287
Asp Glu Tyr Ile Asp Phe Arg Pro Leu Lys Tyr Thr Glu His Lys Thr	5		10		15	
tca atg act aaa tac acc aaa aag tca tcg gaa aaa ctt tcc ggt ggt						335
Ser Met Thr Lys Tyr Thr Lys Lys Ser Ser Glu Lys Leu Ser Gly Gly	20		25		30	
aag tca ttg aaa aag gtt agt att tgt tat act gat cct gac gca aca						383
Lys Ser Leu Lys Lys Val Ser Ile Cys Tyr Thr Asp Pro Asp Ala Thr	35		40		45	
gat tca tca agt gac gaa gac gaa gaa gat ttc ttg ttt cct cgc cgg						431
Asp Ser Ser Ser Asp Glu Asp Glu Glu Asp Phe Leu Phe Pro Arg Arg	50		55		60	65

aga gtc aaa aga ttc gtt aac gag atc act gtt gag cct agc tgt aac	479
Arg Val Lys Arg Phe Val Asn Glu Ile Thr Val Glu Pro Ser Cys Asn	
70 75 80	
aac gtc gtc acc gga gtt tcg atg aaa gat aga aag aga ctc tct tct	527
Asn Val Val Thr Gly Val Ser Met Lys Asp Arg Lys Arg Leu Ser Ser	
85 90 95	
tcc tcc gat gaa act caa tct ccg gcg tcg agt cgt caa cgt cct aat	575
Ser Ser Asp Glu Thr Gln Ser Pro Ala Ser Ser Arg Gln Arg Pro Asn	
100 105 110	
aac aaa gtt tca gtc tcc ggt cag ata aag aag ttc cgt ggt gtt aga	623
Asn Lys Val Ser Val Ser Gly Gln Ile Lys Lys Phe Arg Gly Val Arg	
115 120 125	
caa cgg cca tgg ggg aaa tgg gcg gcg gag att aga gat ccg gag caa	671
Gln Arg Pro Trp Gly Lys Trp Ala Ala Glu Ile Arg Asp Pro Glu Gln	
130 135 140 145	
cgt cgg agg att tgg ctc ggg act ttt gag acg gcg gag gaa gct gcc	719
Arg Arg Arg Ile Trp Leu Gly Thr Phe Glu Thr Ala Glu Ala Ala	
150 155 160	
gtg gtt tat gat aac gcc gct ata aga ctc cgt gga ccg gac gct tta	767
Val Val Tyr Asp Asn Ala Ala Ile Arg Leu Arg Gly Pro Asp Ala Leu	
165 170 175	
act aat ttc tcc ata ccg cct caa gaa gag gaa gaa gaa gaa ccg	815
Thr Asn Phe Ser Ile Pro Pro Gln Glu Glu Glu Glu Glu Glu Pro	
180 185 190	
gaa ccg gtt att gag gag aaa ccg gtt att atg acg acg cca aca cca	863
Glu Pro Val Ile Glu Glu Lys Pro Val Ile Met Thr Thr Pro Thr Pro	
195 200 205	
aca aca tcg agt tct gaa tca act gaa gaa gat tta caa cat ctc tca	911
Thr Thr Ser Ser Ser Glu Ser Thr Glu Glu Asp Leu Gln His Leu Ser	
210 215 220 225	
tct cct act tcg gtt ctc aat cac cgg tca gaa gag att caa caa gta	959
Ser Pro Thr Ser Val Leu Asn His Arg Ser Glu Glu Ile Ser Gln Val	
230 235 240	
caa caa ccg ttt aaa tca gct aaa ccc gaa ccg ggg gtt tca aat gca	1007
Gln Gln Pro Phe Lys Ser Ala Lys Pro Glu Pro Gly Val Ser Asn Ala	
245 250 255	
cca tgg tgg cat acc ggg ttt aat acc ggt tta ggt gaa tca gac gat	1055
Pro Trp Trp His Thr Gly Phe Asn Thr Gly Leu Gly Glu Ser Asp Asp	
260 265 270	
tca ttt cct ttg gat act ccg ttt ctt gac aac tat ttc aat gaa tca	1103
Ser Phe Pro Leu Asp Thr Pro Phe Leu Asp Asn Tyr Phe Asn Glu Ser	
275 280 285	
cca cca gag atg tca ata ttt gac caa cca atg gat caa att ttc tgt	1151

Pro Pro Glu Met Ser Ile Phe Asp Gln Pro Met Asp Gln Ile Phe Cys
290 295 300

gaa aat gat gat atc ttc aat gat atg ttg ttc ttg ggt ggt gaa act 1199
Glu Asn Asp Asp Ile Phe Asn Asp Met Leu Phe Leu Gly Gly Glu Thr
310 315 320

atg aac att gaa gat gag tta aca agt tct agt atc aaa gat atg ggt 1247
Met Asn Ile Glu Asp Glu Leu Thr Ser Ser Ser Ile Lys Asp Met Gly
325 330 335

tca acg ttt agt gat ttt gat gat tca ttg ata tca gat cta tta gtt 1295
Ser Thr Phe Ser Asp Phe Asp Ser Leu Ile Ser Asp Leu Leu Val
340 345 350

gct taa tatgatgatg agagtgaaga agaaaccatc aagcaaatat ctatggtgtg 1351
Ala

actgaaaaat ttggtgtta cttttttttc ttccataagt tcatgagctt tttgtttct 1411

tttttttaat aatttattta gttttgtcag gagcttgtaa aacagttttg gagaaatagt 1471

ggaaaaatag tttaattaaa aaaaaaaaaa aaaaaa 1507

<210> 300 <211> 354 <212> PRT <213> Arabidopsis thaliana <400> 300

Met Asp Glu Tyr Ile Asp Phe Arg Pro Leu Lys Tyr Thr Glu His Lys
1 5 10 15

Thr Ser Met Thr Lys Tyr Thr Lys Lys Ser Ser Glu Lys Leu Ser Gly
20 25 30

Gly Lys Ser Leu Lys Lys Val Ser Ile Cys Tyr Thr Asp Pro Asp Ala
35 40 45

Thr Asp Ser Ser Ser Asp Glu Asp Glu Glu Asp Phe Leu Phe Pro Arg
50 55 60

Arg Arg Val Lys Arg Phe Val Asn Glu Ile Thr Val Glu Pro Ser Cys
65 70 75 80

Asn Asn Val Val Thr Gly Val Ser Met Lys Asp Arg Lys Arg Leu Ser
85 90 95

Ser Ser Ser Asp Glu Thr Gln Ser Pro Ala Ser Ser Arg Gln Arg Pro
100 105 110

Asn Asn Lys Val Ser Val Ser Gly Gln Ile Lys Lys Phe Arg Gly Val

115	120	125
Arg Gln Arg Pro Trp Gly Lys Trp Ala Ala Glu Ile Arg Asp Pro Glu		
130	135	140
Gln Arg Arg Arg Ile Trp Leu Gly Thr Phe Glu Thr Ala Glu Glu Ala		
145	150	155
Ala Val Val Tyr Asp Asn Ala Ala Ile Arg Leu Arg Gly Pro Asp Ala		
165	170	175
Leu Thr Asn Phe Ser Ile Pro Pro Gln Glu Glu Glu Glu Glu Glu Glu		
180	185	190
Pro Glu Pro Val Ile Glu Glu Lys Pro Val Ile Met Thr Thr Pro Thr		
195	200	205
Pro Thr Thr Ser Ser Ser Glu Ser Thr Glu Glu Asp Leu Gln His Leu		
210	215	220
Ser Ser Pro Thr Ser Val Leu Asn His Arg Ser Glu Glu Ile Gln Gln		
225	230	235
Val Gln Gln Pro Phe Lys Ser Ala Lys Pro Glu Pro Gly Val Ser Asn		
245	250	255
Ala Pro Trp Trp His Thr Gly Phe Asn Thr Gly Leu Gly Glu Ser Asp		
260	265	270
Asp Ser Phe Pro Leu Asp Thr Pro Phe Leu Asp Asn Tyr Phe Asn Glu		
275	280	285
Ser Pro Pro Glu Met Ser Ile Phe Asp Gln Pro Met Asp Gln Ile Phe		
290	295	300
Cys Glu Asn Asp Asp Ile Phe Asn Asp Met Leu Phe Leu Gly Gly Glu		
305	310	315
Thr Met Asn Ile Glu Asp Glu Leu Thr Ser Ser Ser Ile Lys Asp Met		
325	330	335
Gly Ser Thr Phe Ser Asp Phe Asp Asp Ser Leu Ile Ser Asp Leu Leu		
340	345	350

Val Ala

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<222> (1)..(1374) <223> G550

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Met Ala Asp Pro Ala Ile Lys Leu Phe Gly Lys Thr Ile Pro Leu Pro
1      5      10      15

gag ctt ggt gtt gtt gat tct tct tct agc tat acc gga ttt tta acc      96
Glu Leu Gly Val Val Asp Ser Ser Ser Ser Tyr Thr Gly Phe Leu Thr
      20      25      30

gaa act cag att cct gtt cgg tta tca gat tcg tgt acc ggc gat gat      144
Glu Thr Gln Ile Pro Val Arg Leu Ser Asp Ser Cys Thr Gly Asp Asp
      35      40      45

gat gat gaa gag atg ggt gat tcc ggt tta gga cga gaa gaa ggt gat      192
Asp Asp Glu Glu Met Gly Asp Ser Gly Leu Gly Arg Glu Glu Gly Asp
      50      55      60

gat gtt ggt gat ggt gga gga gag agc gag act gat aaa aag gaa gaa      240
Asp Val Gly Asp Gly Gly Gly Glu Ser Glu Thr Asp Lys Lys Glu Glu
      65      70      75      80

aaa gat agt gag tgt cag gaa gag tca ttg agg aat gaa tct aat gat      288
Lys Asp Ser Glu Cys Gln Glu Glu Ser Leu Arg Asn Glu Ser Asn Asp
      85      90      95

gtt act act act aca tcg ggt ata act gaa aaa acg gaa aca aca aaa      336
Val Thr Thr Thr Ser Gly Ile Thr Glu Lys Thr Glu Thr Thr Lys
      100      105      110

gct gca aag acg aat gaa gag tca ggt ggt act gct tgc tct caa gag      384
Ala Ala Lys Thr Asn Glu Glu Ser Gly Gly Thr Ala Cys Ser Gln Glu
      115      120      125

ggg aag tta aag aaa cct gat aag att cta ccg tgt ccg cga tgt aac      432
Gly Lys Leu Lys Lys Pro Asp Lys Ile Leu Pro Cys Pro Arg Cys Asn
      130      135      140

agc atg gaa acc aag ttc tgt tac tac aac aac tat aat gtt aac caa      480
Ser Met Glu Thr Lys Phe Cys Tyr Tyr Asn Asn Tyr Asn Val Asn Gln
      145      150      155      160

cct cgc cat ttc tgc aag aaa tgt cag aga tat tgg aca gct ggt gga      528
Pro Arg His Phe Cys Lys Lys Cys Gln Arg Tyr Trp Thr Ala Gly Gly
      165      170      175

acg atg agg aat gtt ccg gtt ggt gct ggg aga cgt aag aat aag agt      576
Thr Met Arg Asn Val Pro Val Gly Ala Gly Arg Arg Lys Asn Lys Ser
      180      185      190

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cca gct tct cat tat aac cgt cat gta agt ata aca tct gcg gaa gct Pro Ala Ser His Tyr Asn Arg His Val Ser Ile Thr Ser Ala Glu Ala 195 200 205	624
atg cag aag gtg gcg aga act gat ctt caa cat cct aat ggt gca aat Met Gln Lys Val Ala Arg Thr Asp Leu Gln His Pro Asn Gly Ala Asn 210 215 220	672
ctt ctg act ttt ggc tct gat tct gtg ctt tgt gaa tct atg gct tct Leu Leu Thr Phe Gly Ser Asp Ser Val Leu Cys Glu Ser Met Ala Ser 225 230 235 240	720
gga ttg aat ctt gtt gag aag tca ttg ttg aag aca caa act gta ttg Gly Leu Asn Leu Val Glu Lys Ser Leu Leu Lys Thr Gln Thr Val Leu 245 250 255	768
caa gaa ccc aat gaa ggc ttg aag att acg gtt ccg tta aac cag aca Gln Glu Pro Asn Glu Gly Leu Lys Ile Thr Val Pro Leu Asn Gln Thr 260 265 270	816
aac gaa gaa gct gga aca gtc agc cgg tta cca aaa gtt cca tgc ttt Asn Glu Glu Ala Gly Thr Val Ser Pro Leu Pro Lys Val Pro Cys Phe 275 280 285	864
cca gga cca cca cca act tgg cct tac gct tgg aac gga gtt tgc tgg Pro Gly Pro Pro Pro Thr Trp Pro Tyr Ala Trp Asn Gly Val Ser Trp 290 295 300	912
acg att tta ccg ttt tac cct cca ccg gct tac tgg agc tgc ccg ggg Thr Ile Leu Pro Phe Tyr Pro Pro Pro Ala Tyr Trp Ser Cys Pro Gly 305 310 315 320	960
gtt tca ccg ggg gca tgg aac agc ttc aca tgg atg cca caa ccc aat Val Ser Pro Gly Ala Trp Asn Ser Phe Thr Trp Met Pro Gln Pro Asn 325 330 335	1008
tca cca tct ggt tcc aat cca aat tct cct aca cta ggt aaa cat tca Ser Pro Ser Gly Ser Asn Pro Asn Ser Pro Thr Leu Gly Lys His Ser 340 345 350	1056
cgt gac gag aac gct gct gaa cca gga acc gct ttt gat gaa acc gag Arg Asp Glu Asn Ala Ala Glu Pro Gly Thr Ala Phe Asp Glu Thr Glu 355 360 365	1104
tca ctt ggt agg gag aaa agc aaa ccc gag aga tgc ttg tgg gtt ccc Ser Leu Gly Arg Glu Lys Ser Lys Pro Glu Arg Cys Leu Trp Val Pro 370 375 380	1152
aag acg ctg agg att gat gat cca gag gaa gct gct aaa agt tcc atc Lys Thr Leu Arg Ile Asp Asp Pro Glu Glu Ala Ala Lys Ser Ser Ile 385 390 395 400	1200
tgg gaa aca tta ggg atc aaa aaa gac gaa aat gcg gat act ttc gga Trp Glu Thr Leu Gly Ile Lys Lys Asp Glu Asn Ala Asp Thr Phe Gly 405 410 415	1248

gct ttc aga tca tca acc aaa gaa aaa agc agt ctt tct gaa gga aga 1296
Ala Phe Arg Ser Ser Thr Lys Glu Lys Ser Ser Leu Ser Glu Gly Arg
420 425 430

ctt ccg gga aga aga ccg gag ttg caa gcg aat cct gct gct ctt tct 1344
Leu Pro Gly Arg Arg Pro Glu Leu Gln Ala Asn Pro Ala Ala Leu Ser
435 440 445

agg tca gca aac ttc cat gag agc tca tag 1374
Arg Ser Ala Asn Phe His Glu Ser Ser
450 455

<210> 302 <211> 457 <212> PRT <213> Arabidopsis thaliana <400> 302

Met Ala Asp Pro Ala Ile Lys Leu Phe Gly Lys Thr Ile Pro Leu Pro
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Glu Leu Gly Val Val Asp Ser Ser Ser Ser Tyr Thr Gly Phe Leu Thr
20 25 30

Glu Thr Gln Ile Pro Val Arg Leu Ser Asp Ser Cys Thr Gly Asp Asp
35 40 45

Asp Asp Glu Glu Met Gly Asp Ser Gly Leu Gly Arg Glu Glu Gly Asp
50 55 60

Asp Val Gly Asp Gly Gly Gly Glu Ser Glu Thr Asp Lys Lys Glu Glu
65 70 75 80

Lys Asp Ser Glu Cys Gln Glu Glu Ser Leu Arg Asn Glu Ser Asn Asp
85 90 95

Val Thr Thr Thr Thr Ser Gly Ile Thr Glu Lys Thr Glu Thr Thr Lys
100 105 110

Ala Ala Lys Thr Asn Glu Glu Ser Gly Gly Thr Ala Cys Ser Gln Glu
115 120 125

Gly Lys Leu Lys Lys Pro Asp Lys Ile Leu Pro Cys Pro Arg Cys Asn
130 135 140

Ser Met Glu Thr Lys Phe Cys Tyr Tyr Asn Asn Tyr Asn Val Asn Gln
145 150 155 160

Pro Arg His Phe Cys Lys Lys Cys Gln Arg Tyr Trp Thr Ala Gly Gly
165 170 175

Thr Met Arg Asn Val Pro Val Gly Ala Gly Arg Arg Lys Asn Lys Ser
180 185 190

Pro Ala Ser His Tyr Asn Arg His Val Ser Ile Thr Ser Ala Glu Ala
195 200 205

Met Gln Lys Val Ala Arg Thr Asp Leu Gln His Pro Asn Gly Ala Asn
210 215 220

Leu Leu Thr Phe Gly Ser Asp Ser Val Leu Cys Glu Ser Met Ala Ser
225 230 235 240

Gly Leu Asn Leu Val Glu Lys Ser Leu Leu Lys Thr Gln Thr Val Leu
245 250 255

Gln Glu Pro Asn Glu Gly Leu Lys Ile Thr Val Pro Leu Asn Gln Thr
260 265 270

Asn Glu Glu Ala Gly Thr Val Ser Pro Leu Pro Lys Val Pro Cys Phe
275 280 285

Pro Gly Pro Pro Pro Thr Trp Pro Tyr Ala Trp Asn Gly Val Ser Trp
290 295 300

Thr Ile Leu Pro Phe Tyr Pro Pro Pro Ala Tyr Trp Ser Cys Pro Gly
305 310 315 320

Val Ser Pro Gly Ala Trp Asn Ser Phe Thr Trp Met Pro Gln Pro Asn
325 330 335

Ser Pro Ser Gly Ser Asn Pro Asn Ser Pro Thr Leu Gly Lys His Ser
340 345 350

Arg Asp Glu Asn Ala Ala Glu Pro Gly Thr Ala Phe Asp Glu Thr Glu
355 360 365

Ser Leu Gly Arg Glu Lys Ser Lys Pro Glu Arg Cys Leu Trp Val Pro
370 375 380

Lys Thr Leu Arg Ile Asp Asp Pro Glu Glu Ala Ala Lys Ser Ser Ile
385 390 395 400

Trp Glu Thr Leu Gly Ile Lys Lys Asp Glu Asn Ala Asp Thr Phe Gly
405 410 415

Ala Phe Arg Ser Ser Thr Lys Glu Lys Ser Ser Leu Ser Glu Gly Arg
420 425 430

Leu Pro Gly Arg Arg Pro Glu Leu Gln Ala Asn Pro Ala Ala Leu Ser
435 440 445

Arg Ser Ala Asn Phe His Glu Ser Ser
450 455

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caa aag ctg agg aaa ggg ctt tgg tct cct gaa gaa gac gag aag ctt 102
Gln Lys Leu Arg Lys Gly Leu Trp Ser Pro Glu Glu Asp Glu Lys Leu
10 15 20 25
ctt act cac atc acc aat cac ggc cat ggc tgc tgg agc tct gtc cct 150
Leu Thr His Ile Thr Asn His Gly His Gly Cys Trp Ser Ser Val Pro
30 35 40
aaa ctc gct ggt ttg cag aga tgt ggg aag agt tgt cga ctc gag cag 198
Lys Leu Ala Gly Leu Gln Arg Cys Gly Lys Ser Cys Arg Leu Glu Gln
45 50 55
atc tgg tac cgc cga cta aga tgg atc aat tac ttg aga cct gat tta 246
Ile Trp Tyr Arg Arg Leu Arg Trp Ile Asn Tyr Leu Arg Pro Asp Leu
60 65 70
aag aga gga gct ttt tct cct gaa gaa gag aat ctc atc gtc gaa ctt 294
Lys Arg Gly Ala Phe Ser Pro Glu Glu Glu Asn Leu Ile Val Glu Leu
75 80 85
cat gcc gtc ctt gga aac aga tgg tca cag att gcg tca agg ctt ccg 342
His Ala Val Leu Gly Asn Arg Trp Ser Gln Ile Ala Ser Arg Leu Pro
90 95 100 105
ggc aga acc gac aac gag atc aag aat cta tgg aac tca agc atc aag 390
Gly Arg Thr Asp Asn Glu Ile Lys Asn Leu Trp Asn Ser Ser Ile Lys
110 115 120
aag aaa ctg aaa caa aga ggc att gac cca aac aca cac aag ccc atc 438
Lys Lys Leu Lys Gln Arg Gly Ile Asp Pro Asn Thr His Lys Pro Ile
125 130 135

tct gaa gtg gag agt ttt agc gac aaa gac aaa cca aca aca agc aac Ser Glu Val Glu Ser Phe Ser Asp Lys Asp Lys Pro Thr Thr Ser Asn 140 145 150	486
aac aaa aga agc ggt aac gat cac aag tct cct agt tcc tct tct gcg Asn Lys Arg Ser Gly Asn Asp His Lys Ser Pro Ser Ser Ser Ala 155 160 165	534
act aac caa gac ttc ttc ctc gaa agg cca tct gat tta tcc gac tac Thr Asn Gln Asp Phe Phe Leu Glu Arg Pro Ser Asp Leu Ser Asp Tyr 170 175 180 185	582
ttc gga ttt cag aag ctt aac ttc aac tcc aat cta gga ctc tct gtt Phe Gly Phe Gln Lys Leu Asn Phe Asn Ser Asn Leu Gly Leu Ser Val 190 195 200	630
aca act gat tct tca ctc tgc tcg atg att ccg ccg cag ttt agc ccc Thr Thr Asp Ser Ser Leu Cys Ser Met Ile Pro Pro Gln Phe Ser Pro 205 210 215	678
ggg aac atg gtt ggt tct gtc ctt cag aca cca gta tgc gta aag ccc Gly Asn Met Val Gly Ser Val Leu Gln Thr Pro Val Cys Val Lys Pro 220 225 230	726
tcg att agt ctt cct ccc gac aac aac agt tcg agt cct atc tcc gga Ser Ile Ser Leu Pro Pro Asp Asn Asn Ser Ser Ser Pro Ile Ser Gly 235 240 245	774
gga gat cat gtg aaa ttg gct gca cca aac tgg gaa ttt cag aca aac Gly Asp His Val Lys Leu Ala Ala Pro Asn Trp Glu Phe Gln Thr Asn 250 255 260 265	822
aac aat aat acc tca aat ttc ttc gac aat ggc gga ttc tca tgg tct Asn Asn Asn Thr Ser Asn Phe Phe Asp Asn Gly Gly Phe Ser Trp Ser 270 275 280	870
atc cca aat tct tct act tct tct tca caa gtc aaa cca aat cat aac Ile Pro Asn Ser Ser Thr Ser Ser Ser Gln Val Lys Pro Asn His Asn 285 290 295	918
ttc gaa gaa ata aaa tgg tca gag tat ttg aac aca ccg ttc ttc ata Phe Glu Glu Ile Lys Trp Ser Glu Tyr Leu Asn Thr Pro Phe Phe Ile 300 305 310	966
ggg agt act gta cag agt caa acc tct caa cca atc tac atc aaa tca Gly Ser Thr Val Gln Ser Gln Thr Ser Gln Pro Ile Tyr Ile Lys Ser 315 320 325	1014
gaa aca gat tac tta gcc aat gtt tca aac atg aca gat cct tgg agc Glu Thr Asp Tyr Leu Ala Asn Val Ser Asn Met Thr Asp Pro Trp Ser 330 335 340 345	1062
caa aac gag aac ttg ggc aca act gaa act agt gac gtg ttc tcc aag Gln Asn Glu Asn Leu Gly Thr Thr Glu Thr Ser Asp Val Phe Ser Lys 350 355 360	1110
gat ctt cag aga atg gcc gtc tct ttt ggt cag tcc ctt tag	1152

Asp Leu Gln Arg Met Ala Val Ser Phe Gly Gln Ser Leu
365 370

cttttttctt tctttctttc ttatttctaa cagatgtaga gaacataaag atatacaaat 1212

acatacaatg tcaatacgta cagtggattt aagtgtcttg tatatttcat gggcgagctg 1272

tctttatttt tatgtttaaa aaaaaaaaaa aaaaaa 1307

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Met Gly Arg His Ser Cys Cys Tyr Lys Gln Lys Leu Arg Lys Gly Leu
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Trp Ser Pro Glu Glu Asp Glu Lys Leu Leu Thr His Ile Thr Asn His
20 25 30

Gly His Gly Cys Trp Ser Ser Val Pro Lys Leu Ala Gly Leu Gln Arg
35 40 45

Cys Gly Lys Ser Cys Arg Leu Glu Gln Ile Trp Tyr Arg Arg Leu Arg
50 55 60

Trp Ile Asn Tyr Leu Arg Pro Asp Leu Lys Arg Gly Ala Phe Ser Pro
65 70 75 80

Glu Glu Glu Asn Leu Ile Val Glu Leu His Ala Val Leu Gly Asn Arg
85 90 95

Trp Ser Gln Ile Ala Ser Arg Leu Pro Gly Arg Thr Asp Asn Glu Ile
100 105 110

Lys Asn Leu Trp Asn Ser Ser Ile Lys Lys Lys Leu Lys Gln Arg Gly
115 120 125

Ile Asp Pro Asn Thr His Lys Pro Ile Ser Glu Val Glu Ser Phe Ser
130 135 140

Asp Lys Asp Lys Pro Thr Thr Ser Asn Asn Lys Arg Ser Gly Asn Asp
145 150 155 160

His Lys Ser Pro Ser Ser Ser Ser Ala Thr Asn Gln Asp Phe Phe Leu
165 170 175

Glu Arg Pro Ser Asp Leu Ser Asp Tyr Phe Gly Phe Gln Lys Leu Asn

180

185

190

Phe Asn Ser Asn Leu Gly Leu Ser Val Thr Thr Asp Ser Ser Leu Cys
195 200 205

Ser Met Ile Pro Pro Gln Phe Ser Pro Gly Asn Met Val Gly Ser Val
210 215 220

Leu Gln Thr Pro Val Cys Val Lys Pro Ser Ile Ser Leu Pro Pro Asp
225 230 235 240

Asn Asn Ser Ser Ser Pro Ile Ser Gly Gly Asp His Val Lys Leu Ala
245 250 255

Ala Pro Asn Trp Glu Phe Gln Thr Asn Asn Asn Asn Thr Ser Asn Phe
260 265 270

Phe Asp Asn Gly Gly Phe Ser Trp Ser Ile Pro Asn Ser Ser Thr Ser
275 280 285

Ser Ser Gln Val Lys Pro Asn His Asn Phe Glu Glu Ile Lys Trp Ser
290 295 300

Glu Tyr Leu Asn Thr Pro Phe Phe Ile Gly Ser Thr Val Gln Ser Gln
305 310 315 320

Thr Ser Gln Pro Ile Tyr Ile Lys Ser Glu Thr Asp Tyr Leu Ala Asn
325 330 335

Val Ser Asn Met Thr Asp Pro Trp Ser Gln Asn Glu Asn Leu Gly Thr
340 345 350

Thr Glu Thr Ser Asp Val Phe Ser Lys Asp Leu Gln Arg Met Ala Val
355 360 365

Ser Phe Gly Gln Ser Leu
370

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<222> (503)..(1534) <223> G864

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ttcttatctt tcctttctcc ttcttatctc ttctctggtt gtgaacgatt ccttaagaat	180
ataacaaaaa gcccttttct cctttcttca actttccggg aaaaatcttc acgcagcaag	240
gtttctctct cggtctctgc agtggttttc gggccttttg ttctttctat aaaaaaaaaa	300
ttcgcgtctc ttaagaaaac tttttccacc tagagaagaa gaagagtatc actcttggtg	360
ttcaagtttc ttcttttaat aaaaaatcca tctttattct ttgtcttctt tcctttttgc	420
tttccctaat ctctatgta taaacacaca gagagaaaca aagtcacagt ctgcagtoaa	480
aaacagagaa tacgaaagaa aa atg gaa gcg gag aag aaa atg gtt cta ccg	532
Met Glu Ala Glu Lys Lys Met Val Leu Pro	
1 5 10	
aga atc aaa ttc aca gag cac aaa acc aac acg aca aca atc gta tcg	580
Arg Ile Lys Phe Thr Glu His Lys Thr Asn Thr Thr Thr Ile Val Ser	
15 20 25	
gag tta acc aac act cac caa acc agg att ctt cgt atc tca gtc act	628
Glu Leu Thr Asn Thr His Gln Thr Arg Ile Leu Arg Ile Ser Val Thr	
30 35 40	
gac cca gac gct act gat tcc tcc agt gac gac gaa gaa gaa gaa cat	676
Asp Pro Asp Ala Thr Asp Ser Ser Ser Asp Asp Glu Glu Glu Glu His	
45 50 55	
caa cgc ttt gtc tct aaa cgc cgt cgt gtt aag aag ttt gtc aac gaa	724
Gln Arg Phe Val Ser Lys Arg Arg Val Lys Lys Phe Val Asn Glu	
60 65 70	
gtc tat ctc gat tcc ggt gct gtt gtt act ggt agt tgt ggt caa atg	772
Val Tyr Leu Asp Ser Gly Ala Val Val Thr Gly Ser Cys Gly Gln Met	
75 80 85 90	
gag tcg aag aag aga caa aag aga gcg gtt aaa tcg gag tct act gtt	820
Glu Ser Lys Lys Arg Gln Lys Arg Ala Val Lys Ser Glu Ser Thr Val	
95 100 105	
tct ccg gtt gtt tca gcg acg acg act acg acg gga gag aag aag ttc	868
Ser Pro Val Val Ser Ala Thr Thr Thr Thr Gly Glu Lys Lys Phe	
110 115 120	
cga gga gtg aga cag cgt cca tgg gga aaa tgg gcg gcg gag ata aga	916
Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Trp Ala Ala Glu Ile Arg	
125 130 135	
gat ccg ttg aaa cgt gta cgg ctc tgg tta ggt act tac aac acg gcg	964
Asp Pro Leu Lys Arg Val Arg Leu Trp Leu Gly Thr Tyr Asn Thr Ala	
140 145 150	
gaa gaa gct gct atg gtt tac gat aac gcc gct att cag ctt cgt ggt	1012
Glu Glu Ala Ala Met Val Tyr Asp Asn Ala Ala Ile Gln Leu Arg Gly	
155 160 165 170	

ccc gac get ctg act aat ttc tca gtc act ccg aca aca gcg acg gag 1060
 Pro Asp Ala Leu Thr Asn Phe Ser Val Thr Pro Thr Thr Ala Thr Glu
 175 180 185

aag aaa gcc cca cca ccg tct ccg gtg aag aag aag aag aaa aac 1108
 Lys Lys Ala Pro Pro Pro Ser Pro Val Lys Lys Lys Lys Lys Asn
 190 195 200

aac aaa agc aaa aat tcc gtt act gct tct tcc tcc atc agc aga agc 1156
 Asn Lys Ser Lys Lys Ser Val Thr Ala Ser Ser Ser Ile Ser Arg Ser
 205 210 215

agc agc aac gat tgt ctc tgc tct ccg gtg tct gtt ctc cga tct cct 1204
 Ser Ser Asn Asp Cys Leu Cys Ser Pro Val Ser Val Leu Arg Ser Pro
 220 225 230

ttc gcc gtc gac gaa ttc tcc gcc att tct tca tca cca gtc gcg gcc 1252
 Phe Ala Val Asp Glu Phe Ser Gly Ile Ser Ser Ser Pro Val Ala Ala
 235 240 245 250

gtt gta gtc aag gaa gag cca tcc atg aca acg gta tct gaa act ttc 1300
 Val Val Val Lys Glu Glu Pro Ser Met Thr Thr Val Ser Glu Thr Phe
 255 260 265

tct gat ttc tcg gcg ccc ttg ttc tca gat gat gac gtg ttc gat ttc 1348
 Ser Asp Phe Ser Ala Pro Leu Phe Ser Asp Asp Asp Val Phe Asp Phe
 270 275 280

cgg agc tca gtg gtt ccc gac tat ctc gcc gcc gat tta ttt ggg gaa 1396
 Arg Ser Ser Val Val Pro Asp Tyr Leu Gly Gly Asp Leu Phe Gly Glu
 285 290 295

gat cta ttc acg gcg gat atg tgt acg gat atg aac ttc gga ttc gat 1444
 Asp Leu Phe Thr Ala Asp Met Cys Thr Asp Met Asn Phe Gly Phe Asp
 300 305 310

ttc gga tcc gga tta tcc agc tgg cac atg gag gac cat ttt caa gat 1492
 Phe Gly Ser Gly Leu Ser Ser Trp His Met Glu Asp His Phe Gln Asp
 315 320 325 330

atc ggg gat cta ttc ggg tcg gat cct ctt tta gct gtt taa 1534
 Ile Gly Asp Leu Phe Gly Ser Asp Pro Leu Leu Ala Val
 335 340

taatatTTTA aataaataaa tagttatacc ggcggttact aaacggaacc ggagaaagtT 1594

ttgtataccg gtgacataaa atctoggtta tggctgtaat cttttttttt ttgttatata 1654

taaaaatatg aatgaaactg aattaatgta agttaatggt gataattatt aacgttttta 1714

gttttgaaaa aaaaaaaaaa aaaaaaaaaa aaa 1747

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His Lys Thr Asn Thr Thr Thr Ile Val Ser Glu Leu Thr Asn Thr His	20	25	30
Gln Thr Arg Ile Leu Arg Ile Ser Val Thr Asp Pro Asp Ala Thr Asp	35	40	45
Ser Ser Ser Asp Asp Glu Glu Glu Glu His Gln Arg Phe Val Ser Lys	50	55	60
Arg Arg Arg Val Lys Lys Phe Val Asn Glu Val Tyr Leu Asp Ser Gly	65	70	75
Ala Val Val Thr Gly Ser Cys Gly Gln Met Glu Ser Lys Lys Arg Gln	85	90	95
Lys Arg Ala Val Lys Ser Glu Ser Thr Val Ser Pro Val Val Ser Ala	100	105	110
Thr Thr Thr Thr Thr Gly Glu Lys Lys Phe Arg Gly Val Arg Gln Arg	115	120	125
Pro Trp Gly Lys Trp Ala Ala Glu Ile Arg Asp Pro Leu Lys Arg Val	130	135	140
Arg Leu Trp Leu Gly Thr Tyr Asn Thr Ala Glu Glu Ala Ala Met Val	145	150	155
Tyr Asp Asn Ala Ala Ile Gln Leu Arg Gly Pro Asp Ala Leu Thr Asn	165	170	175
Phe Ser Val Thr Pro Thr Thr Ala Thr Glu Lys Lys Ala Pro Pro Pro	180	185	190
Ser Pro Val Lys Lys Lys Lys Lys Lys Asn Asn Lys Ser Lys Lys Ser	195	200	205
Val Thr Ala Ser Ser Ser Ile Ser Arg Ser Ser Ser Asn Asp Cys Leu	210	215	220
Cys Ser Pro Val Ser Val Leu Arg Ser Pro Phe Ala Val Asp Glu Phe	225	230	235
			240

Ser Gly Ile Ser Ser Ser Pro Val Ala Ala Val Val Val Lys Glu Glu
245 250 255

Pro Ser Met Thr Thr Val Ser Glu Thr Phe Ser Asp Phe Ser Ala Pro
260 265 270

Leu Phe Ser Asp Asp Asp Val Phe Asp Phe Arg Ser Ser Val Val Pro
275 280 285

Asp Tyr Leu Gly Gly Asp Leu Phe Gly Glu Asp Leu Phe Thr Ala Asp
290 295 300

Met Cys Thr Asp Met Asn Phe Gly Phe Asp Phe Gly Ser Gly Leu Ser
305 310 315 320

Ser Trp His Met Glu Asp His Phe Gln Asp Ile Gly Asp Leu Phe Gly
325 330 335

Ser Asp Pro Leu Leu Ala Val
340

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<222> (63)..(1538) <223> G960

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Met Gly Ala Val Ser Met Glu Ser Leu Pro Leu Gly Phe Arg Phe
1 5 10 15

aga cct acc gat gaa gag ctc gtc aat cac tac ctc cgt ctc aag atc 155
Arg Pro Thr Asp Glu Leu Val Asn His Tyr Leu Arg Leu Lys Ile
20 25 30

aac gga cgt cac tcc gat gtc cgt gtc atc cct gat atc gat gtc tgc 203
Asn Gly Arg His Ser Asp Val Arg Val Ile Pro Asp Ile Asp Val Cys
35 40 45

aaa tgg gaa cct tgg gat ctt cct gct ctc tcg gtg att aag acg gat 251
Lys Trp Glu Pro Trp Asp Leu Pro Ala Leu Ser Val Ile Lys Thr Asp
50 55 60

gat cca gag tgg ttc ttt ttc tgc cct cgt gat cgg aaa tac cct aat 299
Asp Pro Glu Trp Phe Phe Phe Cys Pro Arg Asp Arg Lys Tyr Pro Asn
65 70 75

ggt cat cgc tct aac aga gca act gac tct ggc tat tgg aaa gct act 347

Gly	His	Arg	Ser	Asn	Arg	Ala	Thr	Asp	Ser	Gly	Tyr	Trp	Lys	Ala	Thr	
80					85					90					95	
ggt	aaa	gat	cgt	agc	atc	aag	tct	aag	aag	act	tta	atc	ggt	atg	aag	395
Gly	Lys	Asp	Arg	Ser	Ile	Lys	Ser	Lys	Lys	Thr	Leu	Ile	Gly	Met	Lys	
				100					105					110		
aag	act	ctt	gtc	ttc	tat	cgt	gga	cga	gct	cct	aaa	ggt	gag	cgg	act	443
Lys	Thr	Leu	Val	Phe	Tyr	Arg	Gly	Arg	Ala	Pro	Lys	Gly	Glu	Arg	Thr	
			115					120					125			
aat	tgg	att	atg	cac	gag	tat	cgt	ccc	act	ctt	aag	gat	ctt	gat	ggc	491
Asn	Trp	Ile	Met	His	Glu	Tyr	Arg	Pro	Thr	Leu	Lys	Asp	Leu	Asp	Gly	
			130				135						140			
act	tcc	cct	ggc	caa	agc	cct	tac	gtt	ctt	tgt	cgc	ctc	ttc	cac	aag	539
Thr	Ser	Pro	Gly	Gln	Ser	Pro	Tyr	Val	Leu	Cys	Arg	Leu	Phe	His	Lys	
			145			150					155					
cct	gat	gat	cgg	gtt	aat	ggt	gtc	aag	tcc	gat	gaa	gca	gct	ttt	acg	587
Pro	Asp	Asp	Arg	Val	Asn	Gly	Val	Lys	Ser	Asp	Glu	Ala	Ala	Phe	Thr	
					165					170					175	
gcc	agc	aac	aaa	tac	tca	cct	gat	gat	aca	tca	tct	gat	ctt	gtt	caa	635
Ala	Ser	Asn	Lys	Tyr	Ser	Pro	Asp	Asp	Thr	Ser	Ser	Asp	Leu	Val	Gln	
				180					185					190		
gaa	aca	cct	tcc	tct	gat	gct	gct	gtt	gag	aaa	cca	tca	gat	tat	tca	683
Glu	Thr	Pro	Ser	Ser	Asp	Ala	Ala	Val	Glu	Lys	Pro	Ser	Asp	Tyr	Ser	
			195					200					205			
ggt	gga	tgc	ggt	tat	gct	cat	agt	aat	agt	acc	gca	gat	ggg	aca	atg	731
Gly	Gly	Cys	Gly	Tyr	Ala	His	Ser	Asn	Ser	Thr	Ala	Asp	Gly	Thr	Met	
			210				215					220				
att	gag	gca	cct	gaa	gag	aat	ctt	tgg	tta	tct	tgt	gac	ctt	gaa	gat	779
Ile	Glu	Ala	Pro	Glu	Glu	Asn	Leu	Trp	Leu	Ser	Cys	Asp	Leu	Glu	Asp	
			225				230					235				
caa	aag	gca	cca	cta	ccg	tgt	atg	gat	tct	ata	tat	gct	ggt	gat	ttc	827
Gln	Lys	Ala	Pro	Leu	Pro	Cys	Met	Asp	Ser	Ile	Tyr	Ala	Gly	Asp	Phe	
			240			245				250				255		
agt	tac	gat	gag	att	gga	ttc	caa	ttt	caa	gat	ggt	acc	agc	gaa	cca	875
Ser	Tyr	Asp	Glu	Ile	Gly	Phe	Gln	Phe	Gln	Asp	Gly	Thr	Ser	Glu	Pro	
				260				265					270			
gat	gta	tca	cta	aca	gaa	ttg	ttg	gag	gag	gtg	ttc	aat	aac	cct	gat	923
Asp	Val	Ser	Leu	Thr	Glu	Leu	Leu	Glu	Glu	Val	Phe	Asn	Asn	Pro	Asp	
				275				280					285			
gac	ttc	tct	tgc	gag	gaa	tgc	atc	agt	cga	gag	aat	cca	gca	gtc	tca	971
Asp	Phe	Ser	Cys	Glu	Glu	Ser	Ile	Ser	Arg	Glu	Asn	Pro	Ala	Val	Ser	
			290				295					300				
cca	aat	ggg	ata	ttt	tca	tct	gct	aaa	atg	ctg	cag	tct	gca	gca	cca	1019
Pro	Asn	Gly	Ile	Phe	Ser	Ser	Ala	Lys	Met	Leu	Gln	Ser	Ala	Ala	Pro	

305	310	315	
gag gat gct ttc ttc aac gac ttc atg gct ttc act gat aca gat gct Glu Asp Ala Phe Phe Asn Asp Phe Met Ala Phe Thr Asp Thr Asp Ala 320 325 330 335			1067
gag atg gcg caa ttg cag tat ggt tca gaa ggt gga gct tct ggt tgg Glu Met Ala Gln Leu Gln Tyr Gly Ser Glu Gly Gly Ala Ser Gly Trp 340 345 350			1115
cca agt gac act aat tca tac tat agt gat ttg gtt cag caa gag caa Pro Ser Asp Thr Asn Ser Tyr Tyr Ser Asp Leu Val Gln Gln Glu 355 360 365			1163
atg atc aat cat aac aca gag aac aac ctc aca gaa ggg aga ggg ata Met Ile Asn His Asn Thr Glu Asn Asn Leu Thr Glu Gly Arg Gly Ile 370 375 380			1211
aag atc cgg gct cga cag cct cag aac cgg cag agt aca gga ttg ata Lys Ile Arg Ala Arg Gln Pro Gln Asn Arg Gln Ser Thr Gly Leu Ile 385 390 395			1259
aac cag ggt att gct cca agg aga atc cgt ctg cag ctg cag tct aac Asn Gln Gly Ile Ala Pro Arg Arg Ile Arg Leu Gln Leu Gln Ser Asn 400 405 410 415			1307
tct gaa gta aaa gaa cga gag gag gtg aat gaa gga cac act gtt att Ser Glu Val Lys Glu Arg Glu Glu Val Asn Glu Gly His Thr Val Ile 420 425 430			1355
ccc gag gcc aaa gaa gct gca gct aaa tac tca gag aag agt ggt tct Pro Glu Ala Lys Glu Ala Ala Lys Tyr Ser Glu Lys Ser Gly Ser 435 440 445			1403
ttg gtt aaa cct caa ata aag ctc agg gcg cgg gga act ata ggc caa Leu Val Lys Pro Gln Ile Lys Leu Arg Ala Arg Gly Thr Ile Gly Gln 450 455 460			1451
gta aaa gga gag aga ttt gca gac gac gag gta cag gtg cag agc aca Val Lys Gly Glu Arg Phe Ala Asp Asp Glu Val Gln Val Gln Ser Thr 465 470 475			1499
aag aga gag aga gag aga atc aaa tgt agt tta atg taa ttaggatga Lys Arg Glu Arg Glu Arg Ile Lys Cys Ser Leu Met 480 485 490			1548
tgcaatgtta gcatgtttgt gtgtgtgaac ttaaaaaactt atttaggaat ctgataaaag			1608
ttactgttga aaaaagaaaa aaaaaaaaaa aaaaaaaaaa aaaa			1652
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 20 25 30

Gly Arg His Ser Asp Val Arg Val Ile Pro Asp Ile Asp Val Cys Lys
 35 40 45

Trp Glu Pro Trp Asp Leu Pro Ala Leu Ser Val Ile Lys Thr Asp Asp
 50 55 60

Pro Glu Trp Phe Phe Phe Cys Pro Arg Asp Arg Lys Tyr Pro Asn Gly
 65 70 75 80

His Arg Ser Asn Arg Ala Thr Asp Ser Gly Tyr Trp Lys Ala Thr Gly
 85 90 95

Lys Asp Arg Ser Ile Lys Ser Lys Lys Thr Leu Ile Gly Met Lys Lys
 100 105 110

Thr Leu Val Phe Tyr Arg Gly Arg Ala Pro Lys Gly Glu Arg Thr Asn
 115 120 125

Trp Ile Met His Glu Tyr Arg Pro Thr Leu Lys Asp Leu Asp Gly Thr
 130 135 140

Ser Pro Gly Gln Ser Pro Tyr Val Leu Cys Arg Leu Phe His Lys Pro
 145 150 155 160

Asp Asp Arg Val Asn Gly Val Lys Ser Asp Glu Ala Ala Phe Thr Ala
 165 170 175

Ser Asn Lys Tyr Ser Pro Asp Asp Thr Ser Ser Asp Leu Val Gln Glu
 180 185 190

Thr Pro Ser Ser Asp Ala Ala Val Glu Lys Pro Ser Asp Tyr Ser Gly
 195 200 205

Gly Cys Gly Tyr Ala His Ser Asn Ser Thr Ala Asp Gly Thr Met Ile
 210 215 220

Glu Ala Pro Glu Glu Asn Leu Trp Leu Ser Cys Asp Leu Glu Asp Gln
 225 230 235 240

Lys Ala Pro Leu Pro Cys Met Asp Ser Ile Tyr Ala Gly Asp Phe Ser

245

250

255

Tyr Asp Glu Ile Gly Phe Gln Phe Gln Asp Gly Thr Ser Glu Pro Asp
260 265 270

Val Ser Leu Thr Glu Leu Leu Glu Glu Val Phe Asn Asn Pro Asp Asp
275 280 285

Phe Ser Cys Glu Glu Ser Ile Ser Arg Glu Asn Pro Ala Val Ser Pro
290 295 300

Asn Gly Ile Phe Ser Ser Ala Lys Met Leu Gln Ser Ala Ala Pro Glu
305 310 315 320

Asp Ala Phe Phe Asn Asp Phe Met Ala Phe Thr Asp Thr Asp Ala Glu
325 330 335

Met Ala Gln Leu Gln Tyr Gly Ser Glu Gly Gly Ala Ser Gly Trp Pro
340 345 350

Ser Asp Thr Asn Ser Tyr Tyr Ser Asp Leu Val Gln Gln Glu Gln Met
355 360 365

Ile Asn His Asn Thr Glu Asn Asn Leu Thr Glu Gly Arg Gly Ile Lys
370 375 380

Ile Arg Ala Arg Gln Pro Gln Asn Arg Gln Ser Thr Gly Leu Ile Asn
385 390 395 400

Gln Gly Ile Ala Pro Arg Arg Ile Arg Leu Gln Leu Gln Ser Asn Ser
405 410 415

Glu Val Lys Glu Arg Glu Glu Val Asn Glu Gly His Thr Val Ile Pro
420 425 430

Glu Ala Lys Glu Ala Ala Ala Lys Tyr Ser Glu Lys Ser Gly Ser Leu
435 440 445

Val Lys Pro Gln Ile Lys Leu Arg Ala Arg Gly Thr Ile Gly Gln Val
450 455 460

Lys Gly Glu Arg Phe Ala Asp Asp Glu Val Gln Val Gln Ser Thr Lys
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Arg Glu Arg Glu Arg Ile Lys Cys Ser Leu Met
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tctctctctc cggttaacta aaagagaa atg aaa agc cga gtg aga aaa tcc 112
Met Lys Ser Arg Val Arg Lys Ser
1 5
aag tac acg gtt cac cgg aaa atc aca tcc aca ccg ttc gac ggt ttc 160
Lys Tyr Thr Val His Arg Lys Ile Thr Ser Thr Pro Phe Asp Gly Phe
10 15 20
ccg aag att gtc aaa atc ata gtc act gac cca tgc gct act gat tct 208
Pro Lys Ile Val Lys Ile Ile Val Thr Asp Pro Cys Ala Thr Asp Ser
25 30 35 40
tcc agc gat gag gaa aac gac aac aaa tct gtt gct ccg agg gtg aaa 256
Ser Ser Asp Glu Glu Asn Asp Asn Lys Ser Val Ala Pro Arg Val Lys
45 50 55
cgt tat gtg gat gag atc agg ttc tgt gac gaa gat gac gaa cct aaa 304
Arg Tyr Val Asp Glu Ile Arg Phe Cys Asp Glu Asp Asp Glu Pro Lys
60 65 70
ccg gcg agg aaa gcg aag aaa aag tcc ccg gcg gct gcg gcg gag aac 352
Pro Ala Arg Lys Ala Lys Lys Lys Ser Pro Ala Ala Ala Ala Glu Asn
75 80 85
ggt gga gat ttg gta aag tct gtg gtg aag tat aga gga gtg aga caa 400
Gly Gly Asp Leu Val Lys Ser Val Val Lys Tyr Arg Gly Val Arg Gln
90 95 100
cga cct tgg gga aaa ttt gcg gcg gag att cgt gat cct tgg agt cgt 448
Arg Pro Trp Gly Lys Phe Ala Ala Glu Ile Arg Asp Pro Ser Ser Arg
105 110 115 120
act aga ctc tgg ctt ggg act ttt gcg acg gcg gag gaa gct gct ata 496
Thr Arg Leu Trp Phe Gly Thr Phe Ala Thr Ala Glu Glu Ala Ala Ile
125 130 135
ggt tac gat aga gcc gcg att cga atc aaa ggt cat aac gct cag acg 544
Gly Tyr Asp Arg Ala Ala Ile Arg Ile Lys Gly His Asn Ala Gln Thr
140 145 150
aat ttt ctc act cct cct cct agt ccg acg act gag gtg tta ccg gaa 592
Asn Phe Leu Thr Pro Pro Pro Ser Pro Thr Thr Glu Val Leu Pro Glu
155 160 165
act ccg gtg att gac ctt gaa act gtc tct ggt tgt gat tgg gcg agg 640

Thr Pro Val Ile Asp Leu Glu Thr Val Ser Gly Cys Asp Ser Ala Arg
170 175 180

gaa tgc caa atc agt ctg tgt tct ccg act tct gtt ctc cgg ttt agt 688
Glu Ser Gln Ile Ser Leu Cys Ser Pro Thr Ser Val Leu Arg Phe Ser
185 190 195 200

cac aac gac gaa aca gag tac aga aca gag cca acg gaa gaa caa aat 736
His Asn Asp Glu Thr Glu Tyr Arg Thr Glu Pro Thr Glu Glu Gln Asn
205 210 215

ccg ttt ttc ttg cct gat ttg ttt cgc tcc gga gat tat ttt tgg gat 784
Pro Phe Phe Leu Pro Asp Leu Phe Arg Ser Gly Asp Tyr Phe Trp Asp
220 225 230

tcc gaa att acc cct gac cct ttg ttt ctc gac gaa ttc cac cag tcc 832
Ser Glu Ile Thr Pro Asp Pro Leu Phe Leu Asp Glu Phe His Gln Ser
235 240 245

ttg tta cca aac atc aac aac aac aac aca gtg tgt gat aag gat acg 880
Leu Leu Pro Asn Ile Asn Asn Asn Asn Thr Val Cys Asp Lys Asp Thr
250 255 260

aat ctg tct gat agt ttt ccg ttg gga gtg atc gga gat ttc agc tca 928
Asn Leu Ser Asp Ser Phe Pro Leu Gly Val Ile Gly Asp Phe Ser Ser
265 270 275 280

tgg gat gtt gat gag ttt ttc caa gat cat ttg ttg gat aag taa 973
Trp Asp Val Asp Glu Phe Phe Gln Asp His Leu Leu Asp Lys
285 290

tttgatgagt tcttccccag aatttttctg ggtttotctt ttgggttggtg tgagtgagat 1033

gagtggtttg atgacaacga cggggatgaa tcttagccgt ccgttttoca tttcgtggac 1093

ggotccgato agcgggaagaa gcgcaacgga gttttttatt atctgtttga gaattttata 1153

atttaatttg cgagtaataa tagtaattag tgtaagatt gtgagagttt aagttaatta 1213

ggggggggtt ttgaattatg gggatttttg gaggtttttg ttgggtttct ctccaagtct 1273

gtcactatgc aaggaagcag tataaagacc gtatatatat tttattatta atattgataa 1333

aagtaaaaaa aaaaaaaaaa a 1354

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Thr Ser Thr Pro Phe Asp Gly Phe Pro Lys Ile Val Lys Ile Ile Val
20 25 30

Thr Asp Pro Cys Ala Thr Asp Ser Ser Ser Asp Glu Glu Asn Asp Asn

35

40

45

Lys Ser Val Ala Pro Arg Val Lys Arg Tyr Val Asp Glu Ile Arg Phe
50 55 60

Cys Asp Glu Asp Asp Glu Pro Lys Pro Ala Arg Lys Ala Lys Lys Lys
65 70 75 80

Ser Pro Ala Ala Ala Glu Asn Gly Gly Asp Leu Val Lys Ser Val
85 90 95

Val Lys Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Phe Ala Ala
100 105 110

Glu Ile Arg Asp Pro Ser Ser Arg Thr Arg Leu Trp Leu Gly Thr Phe
115 120 125

Ala Thr Ala Glu Glu Ala Ala Ile Gly Tyr Asp Arg Ala Ala Ile Arg
130 135 140

Ile Lys Gly His Asn Ala Gln Thr Asn Phe Leu Thr Pro Pro Pro Ser
145 150 155 160

Pro Thr Thr Glu Val Leu Pro Glu Thr Pro Val Ile Asp Leu Glu Thr
165 170 175

Val Ser Gly Cys Asp Ser Ala Arg Glu Ser Gln Ile Ser Leu Cys Ser
180 185 190

Pro Thr Ser Val Leu Arg Phe Ser His Asn Asp Glu Thr Glu Tyr Arg
195 200 205

Thr Glu Pro Thr Glu Glu Gln Asn Pro Phe Phe Leu Pro Asp Leu Phe
210 215 220

Arg Ser Gly Asp Tyr Phe Trp Asp Ser Glu Ile Thr Pro Asp Pro Leu
225 230 235 240

Phe Leu Asp Glu Phe His Gln Ser Leu Leu Pro Asn Ile Asn Asn Asn
245 250 255

Asn Thr Val Cys Asp Lys Asp Thr Asn Leu Ser Asp Ser Phe Pro Leu
260 265 270

Gly Val Ile Gly Asp Phe Ser Ser Trp Asp Val Asp Glu Phe Phe Gln
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Asp His Leu Leu Asp Lys
290

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tctactttct tctcgttacc acaaaactct ttcaccgata ttctcggtcc attctctctc 120
ctaattacac c atg ccc aac atc acc atg ggt ttg aaa ccc gac ccg gtt 170
Met Pro Asn Ile Thr Met Gly Leu Lys Pro Asp Pro Val
1 5 10
gct cca acg aac ccg act cat cat gag agt aat gct gcc aaa gag att 218
Ala Pro Thr Asn Pro Thr His His Glu Ser Asn Ala Ala Lys Glu Ile
15 20 25
cgt tac aga ggc gtt agg aaa cgt cca tgg gga aga tac gcc gct gag 266
Arg Tyr Arg Gly Val Arg Lys Arg Pro Trp Gly Arg Tyr Ala Ala Glu
30 35 40 45
atc cga gat ccg gtt aag aaa act cga gtc tgg ctc ggt acg ttc gac 314
Ile Arg Asp Pro Val Lys Lys Thr Arg Val Trp Leu Gly Thr Phe Asp
50 55 60
acc gct cag cag gcg gcg cgt gct tac gac gca gcc gcg cgt gac ttt 362
Thr Ala Gln Gln Ala Ala Arg Ala Tyr Asp Ala Ala Ala Arg Asp Phe
65 70 75
cgt ggt gtt aag gct aag acc aat ttc ggt gtt atc gtt ggt agt agt 410
Arg Gly Val Lys Ala Lys Thr Asn Phe Gly Val Ile Val Gly Ser Ser
80 85 90
cct act cag agt agc acc gtc gtc gac tct ccc acg gcg gca cgg ttt 458
Pro Thr Gln Ser Ser Thr Val Val Asp Ser Pro Thr Ala Ala Arg Phe
95 100 105
ata aca cct ccg cac ctc gag ctc agc tta ggc ggc ggc ggc ggc tgt 506
Ile Thr Pro Pro His Leu Glu Leu Ser Leu Gly Gly Gly Ala Cys
110 115 120 125
cgt cgt aag atc ccg ctt gtg cat ccg gtt tac tac tat aac atg gcg 554
Arg Arg Lys Ile Pro Leu Val His Pro Val Tyr Tyr Tyr Asn Met Ala
130 135 140
acg tat cca aag atg acg acg tgt ggt gtc cag agc gag tct gaa acg 602
Thr Tyr Pro Lys Met Thr Thr Cys Gly Val Gln Ser Glu Ser Glu Thr
145 150 155

tcg tcg gtc gtt gat ttc gaa ggt gga gct ggg aag ata tct ccg ccg 650
 Ser Ser Val Val Asp Phe Glu Gly Gly Ala Gly Lys Ile Ser Pro Pro
 160 165 170

tta gat ctg gat ctt aac tta gct cct ccg gcg gaa tag gccgtgagtt 699
 Leu Asp Leu Asp Leu Asn Leu Ala Pro Pro Ala Glu
 175 180 185

tttttttct tatgtcgttt ctttagacaa aaaaaaataa cgtttccttt ttttttctgc 759
 ctaagaaaaa aatattatcc gttttttaga agaaaaaaaa aaaaaaaaaa aaaa 813

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Asn Pro Thr His Glu Ser Asn Ala Ala Lys Glu Ile Arg Tyr Arg
 20 25 30

Gly Val Arg Lys Arg Pro Trp Gly Arg Tyr Ala Ala Glu Ile Arg Asp
 35 40 45

Pro Val Lys Lys Thr Arg Val Trp Leu Gly Thr Phe Asp Thr Ala Gln
 50 55 60

Gln Ala Ala Arg Ala Tyr Asp Ala Ala Ala Arg Asp Phe Arg Gly Val
 65 70 75 80

Lys Ala Lys Thr Asn Phe Gly Val Ile Val Gly Ser Ser Pro Thr Gln
 85 90 95

Ser Ser Thr Val Val Asp Ser Pro Thr Ala Ala Arg Phe Ile Thr Pro
 100 105 110

Pro His Leu Glu Leu Ser Leu Gly Gly Gly Ala Cys Arg Arg Lys
 115 120 125

Ile Pro Leu Val His Pro Val Tyr Tyr Tyr Asn Met Ala Thr Tyr Pro
 130 135 140

Lys Met Thr Thr Cys Gly Val Gln Ser Glu Ser Glu Thr Ser Ser Val
 145 150 155 160

Val Asp Phe Glu Gly Gly Ala Gly Lys Ile Ser Pro Pro Leu Asp Leu

165

170

175

Asp Leu Asn Leu Ala Pro Pro Ala Glu
180 185

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aac gga tat ttc caa tat cta tca ccg gaa tac aac gta ata aac atg 103
Asn Gly Tyr Phe Gln Tyr Leu Ser Pro Glu Tyr Asn Val Ile Asn Met
10 15 20

cct tca tct cca acc tct tcc tta aac tac cta aac gat ttg atc atc 151
Pro Ser Ser Pro Thr Ser Ser Leu Asn Tyr Leu Asn Asp Leu Ile Ile
25 30 35

aac aac aac aac tat tcc tca tca tcc aac agt caa gat ctc atg ata 199
Asn Asn Asn Asn Tyr Ser Ser Ser Ser Asn Ser Gln Asp Leu Met Ile
40 45 50

agc aac aac tca act tcc gac gaa gat cat cat caa agc atc atg gta 247
Ser Asn Asn Ser Thr Ser Asp Glu Asp His His Gln Ser Ile Met Val
55 60 65 70

ctc gac gag agg aaa cag aga agg atg ctt tcg aac aga gaa tct gca 295
Leu Asp Glu Arg Lys Gln Arg Arg Met Leu Ser Asn Arg Glu Ser Ala
75 80 85

agg agg tca agg atg agg aaa cag aga cat ctt gat gaa ctc tgg tct 343
Arg Arg Ser Arg Met Arg Lys Gln Arg His Leu Asp Glu Leu Trp Ser
90 95 100

cag gta ata agg ctt cgc aac gag aac aac tgt ctt atc gat aag ctg 391
Gln Val Ile Arg Leu Arg Asn Glu Asn Asn Cys Leu Ile Asp Lys Leu
105 110 115

aac cgc gta tcg gag act caa aat tgt gta ttg aag gag aac tct aaa 439
Asn Arg Val Ser Glu Thr Gln Asn Cys Val Leu Lys Glu Asn Ser Lys
120 125 130

ctc aaa gaa gaa gct tct gat ctc cga cag ctt gtt tgt gaa ctg aaa 487
Leu Lys Glu Glu Ala Ser Asp Leu Arg Gln Leu Val Cys Glu Leu Lys
135 140 145 150

tct aac aag aac aac aac aat agt ttt cca aga gag ttt gaa gat aat 535
Ser Asn Lys Asn Asn Asn Ser Phe Pro Arg Glu Phe Glu Asp Asn
155 160 165

tag tattactcaa a 549

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Met Ile Pro Ala Glu Ile Asn Gly Tyr Phe Gln Tyr Leu Ser Pro Glu
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Tyr Asn Val Ile Asn Met Pro Ser Ser Pro Thr Ser Ser Leu Asn Tyr
20 25 30

Leu Asn Asp Leu Ile Ile Asn Asn Asn Tyr Ser Ser Ser Ser Asn
35 40 45

Ser Gln Asp Leu Met Ile Ser Asn Asn Ser Thr Ser Asp Glu Asp His
50 55 60

His Gln Ser Ile Met Val Leu Asp Glu Arg Lys Gln Arg Arg Met Leu
65 70 75 80

Ser Asn Arg Glu Ser Ala Arg Arg Ser Arg Met Arg Lys Gln Arg His
85 90 95

Leu Asp Glu Leu Trp Ser Gln Val Ile Arg Leu Arg Asn Glu Asn Asn
100 105 110

Cys Leu Ile Asp Lys Leu Asn Arg Val Ser Glu Thr Gln Asn Cys Val
115 120 125

Leu Lys Glu Asn Ser Lys Leu Lys Glu Glu Ala Ser Asp Leu Arg Gln
130 135 140

Leu Val Cys Glu Leu Lys Ser Asn Lys Asn Asn Asn Ser Phe Pro
145 150 155 160

Arg Glu Phe Glu Asp Asn
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aagtattgca ttcaactcagt tgagcaactt aacaatcgtg ttgtactttt tgaagttccc 180

ttgagctaaa ctgctaagag c atg cct ctg gat aag agg caa cgg gat ttg	231
Met Pro Leu Asp Lys Arg Gln Arg Asp Leu	
1 5 10	
cct ctg ggc tta agt cct caa gct tgc ttc aag gat ata gta ggt cgg	279
Pro Leu Gly Leu Ser Pro Gln Ala Cys Phe Lys Asp Ile Val Gly Arg	
15 20 25	
tct gtc ctt cct aga att cct ctc cct gag ctt ggg aaa cta tat gca	327
Ser Val Leu Pro Arg Ile Pro Leu Pro Glu Leu Gly Lys Leu Tyr Ala	
30 35 40	
gct aag ctt cag gct cgc tgt ttg cag cca cca cca ttc cag tct ttg	375
Ala Lys Leu Gln Ala Arg Cys Leu Gln Pro Pro Pro Phe Gln Ser Leu	
45 50 55	
ctg tgc agt cat gat aag gag tct tat gga aaa aga ttc tca cgg tct	423
Leu Cys Ser His Asp Lys Glu Ser Tyr Gly Lys Arg Phe Ser Arg Ser	
60 65 70	
gac atg cgg tct tgg tgc gct gct gct act act act act act cca ctt	471
Asp Met Arg Ser Trp Cys Ala Ala Ala Thr Thr Thr Thr Pro Leu	
75 80 85 90	
gga gca tta gag tct tct cag aaa aga ctt ttg ata ttc gat cag tca	519
Gly Ala Leu Glu Ser Ser Gln Lys Arg Leu Leu Ile Phe Asp Gln Ser	
95 100 105	
gga gac cag act cgt cta tta caa tgt cca ttt cct cta cgg ttt cca	567
Gly Asp Gln Thr Arg Leu Leu Gln Cys Pro Phe Pro Leu Arg Phe Pro	
110 115 120	
tct cat gcg gct gca gaa cca gtg aaa ctc tct gag tta caa ggt ata	615
Ser His Ala Ala Ala Glu Pro Val Lys Leu Ser Glu Leu Gln Gly Ile	
125 130 135	
gag aaa gct ttc aaa gaa gat ggt gaa gag ttt cac aag agt gat gga	663
Glu Lys Ala Phe Lys Glu Asp Gly Glu Glu Phe His Lys Ser Asp Gly	
140 145 150	
aca gag tca gaa atg cat gaa gac act gag gag atc aat gca ttg cta	711
Thr Glu Ser Glu Met His Glu Asp Thr Glu Glu Ile Asn Ala Leu Leu	
155 160 165 170	
tat tca gat gat gat tat gat gat gat tgc gag agt gat gat gaa gta	759
Tyr Ser Asp Asp Asp Tyr Asp Asp Asp Cys Glu Ser Asp Asp Glu Val	
175 180 185	
atg agc act ggt cac tct cct tat cca aat gaa gga gtt tgc aac aaa	807
Met Ser Thr Gly His Ser Pro Tyr Pro Asn Glu Gly Val Cys Asn Lys	
190 195 200	
agg gaa tta gaa gaa atc gat ggt cct tgt aaa agg cag aaa cta ctg	855
Arg Glu Leu Glu Glu Ile Asp Gly Pro Cys Lys Arg Gln Lys Leu Leu	
205 210 215	
gat aag gtc aac aac atc agc gac tta tca tca ctt gtg ggc act gag	903

Asp Lys Val Asn Asn Ile Ser Asp Leu Ser Ser Leu Val Gly Thr Glu
220 225 230

agc tcc aca caa ctc aat gga tct tcc ttt ctt aag gac aaa aag ctc 951
Ser Ser Thr Thr Gln Leu Asn Gly Ser Ser Phe Leu Lys Asp Lys Lys Leu
235 240 245 250

cct gaa tca aaa acc ata tcg acc aaa gag gac act ggt tct ggt ctg 999
Pro Glu Ser Lys Thr Ile Ser Thr Lys Glu Asp Thr Gly Ser Gly Leu
255 260 265

agc aac gag cag tcg aag aaa gac aag atc cgc aca gct ctg aaa ata 1047
Ser Asn Glu Gln Ser Lys Lys Asp Lys Ile Arg Thr Ala Leu Lys Ile
270 275 280

ctc gag agc gta gtc cct ggt gca aaa gga aac gaa gcg ctc tta ctt 1095
Leu Glu Ser Val Val Pro Gly Ala Lys Gly Asn Glu Ala Leu Leu Leu
285 290 295

ctg gac gaa gca att gat tac cta aag ttg ctg aaa cga gac tta atc 1143
Leu Asp Glu Ala Ile Asp Tyr Leu Lys Leu Leu Lys Arg Asp Leu Ile
300 305 310

tcc aca gag gtt aag aac caa agc tcc acc act cac aag tca cca atc 1191
Ser Thr Glu Val Lys Asn Gln Ser Ser Thr Thr His Lys Ser Pro Ile
315 320 325 330

ttg ttg ctt aaa gag aca aca tgg gga aca aga aat ctg gag aca gat 1239
Leu Leu Leu Lys Glu Thr Thr Trp Gly Thr Arg Asn Leu Gln Thr Asp
335 340 345

aag gcg tga aagattctga cgagttaaaa cgtgtgaagt ggggtttttgg 1288
Lys Ala

gtacgtatcc ttgcaccagc ttt 1311

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Gln Ala Cys Phe Lys Asp Ile Val Gly Arg Ser Val Leu Pro Arg Ile
20 25 30

Pro Leu Pro Glu Leu Gly Lys Leu Tyr Ala Ala Lys Leu Gln Ala Arg
35 40 45

Cys Leu Gln Pro Pro Pro Phe Gln Ser Leu Leu Cys Ser His Asp Lys
50 55 60

Glu Ser Tyr Gly Lys Arg Phe Ser Arg Ser Asp Met Arg Ser Trp Cys

65

70

75

80

Ala Ala Ala Thr Thr Thr Thr Thr Pro Leu Gly Ala Leu Glu Ser Ser
85 90 95

Gln Lys Arg Leu Leu Ile Phe Asp Gln Ser Gly Asp Gln Thr Arg Leu
100 105 110

Leu Gln Cys Pro Phe Pro Leu Arg Phe Pro Ser His Ala Ala Ala Glu
115 120 125

Pro Val Lys Leu Ser Glu Leu Gln Gly Ile Glu Lys Ala Phe Lys Glu
130 135 140

Asp Gly Glu Glu Phe His Lys Ser Asp Gly Thr Glu Ser Glu Met His
145 150 155 160

Glu Asp Thr Glu Glu Ile Asn Ala Leu Leu Tyr Ser Asp Asp Asp Tyr
165 170 175

Asp Asp Asp Cys Glu Ser Asp Asp Glu Val Met Ser Thr Gly His Ser
180 185 190

Pro Tyr Pro Asn Glu Gly Val Cys Asn Lys Arg Glu Leu Glu Glu Ile
195 200 205

Asp Gly Pro Cys Lys Arg Gln Lys Leu Leu Asp Lys Val Asn Asn Ile
210 215 220

Ser Asp Leu Ser Ser Leu Val Gly Thr Glu Ser Ser Thr Gln Leu Asn
225 230 235 240

Gly Ser Ser Phe Leu Lys Asp Lys Lys Leu Pro Glu Ser Lys Thr Ile
245 250 255

Ser Thr Lys Glu Asp Thr Gly Ser Gly Leu Ser Asn Glu Gln Ser Lys
260 265 270

Lys Asp Lys Ile Arg Thr Ala Leu Lys Ile Leu Glu Ser Val Val Pro
275 280 285

Gly Ala Lys Gly Asn Glu Ala Leu Leu Leu Leu Asp Glu Ala Ile Asp
290 295 300

Tyr Leu Lys Leu Leu Lys Arg Asp Leu Ile Ser Thr Glu Val Lys Asn
305 310 315 320

Gln Ser Ser Thr Thr His Lys Ser Pro Ile Leu Leu Leu Lys Glu Thr
325 330 335

Thr Trp Gly Thr Arg Asn Leu Gln Thr Asp Lys Ala
340 345

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ttcgtgactt tcaggggaca cttttgtttt tataacttac gcttaaaatc ct atg aat 118
Met Asn
1
tcg ccg ccg gtt gac gca atg att acc gga gaa tca tcg tca caa aga 166
Ser Pro Pro Val Asp Ala Met Ile Thr Gly Glu Ser Ser Ser Gln Arg
5 10 15
tct atc cca acg ccg ttt ctc aca aaa acg ttt aac ctc gtt gaa gat 214
Ser Ile Pro Thr Pro Phe Leu Thr Lys Thr Phe Asn Leu Val Glu Asp
20 25 30
agt tcc atc gac gat gtt atc tca tgg aac gaa gat ggt tcc tct ttc 262
Ser Ser Ile Asp Asp Val Ile Ser Trp Asn Glu Asp Gly Ser Ser Phe
35 40 45 50
atc gta tgg aat ccg aca gat ttc gct aaa gat ttg ctt cct aaa cac 310
Ile Val Trp Asn Pro Thr Asp Phe Ala Lys Asp Leu Leu Pro Lys His
55 60 65
ttc aaa cac aac aat ttc tct agt ttc gtt cgt cag ctc aac act tac 358
Phe Lys His Asn Asn Phe Ser Ser Phe Val Arg Gln Leu Asn Thr Tyr
70 75 80
gga ttc aaa aaa gtt gta ccg gat cga tgg gag ttt tca aac gat ttc 406
Gly Phe Lys Lys Val Val Pro Asp Arg Trp Glu Phe Ser Asn Asp Phe
85 90 95
ttt aag aga gga gaa aaa cgt ctt ctc cgt gag atc caa cgt cgg aaa 454
Phe Lys Arg Gly Glu Lys Arg Leu Leu Arg Glu Ile Gln Arg Arg Lys
100 105 110
ata aca acg acg cat caa aca gtt gtt gct cct tcg tcg gaa caa cga 502
Ile Thr Thr Thr His Gln Thr Val Val Ala Pro Ser Ser Glu Gln Arg
115 120 125 130
aac cag acg atg gtt gta tca ccg tca aat tcc ggg gaa gat aat aat 550

Asn Gln Thr Met Val Val Ser Pro Ser Asn Ser Gly Glu Asp Asn Asn	
135 140 145	
aat aat cag gtg atg tct tgc tct ccg tgc tgc tgg tat tgt cat caa	598
Asn Asn Gln Val Met Ser Ser Ser Pro Ser Ser Trp Tyr Cys His Gln	
150 155 160	
acg aag acg act ggg aat ggt ggt tta tca gtg gag tta ttg gaa gag	646
Thr Lys Thr Thr Gly Asn Gly Gly Leu Ser Val Glu Leu Leu Glu Glu	
165 170 175	
aac gag aag ctt cgg agt caa aac att cag cta aac cgt gag ctt act	694
Asn Glu Lys Leu Arg Ser Gln Asn Ile Gln Leu Asn Arg Glu Leu Thr	
180 185 190	
cag atg aaa tct atc tgc gat aat atc tat agt ctc atg tgc aat tac	742
Gln Met Lys Ser Ile Cys Asp Asn Ile Tyr Ser Leu Met Ser Asn Tyr	
195 200 205 210	
gtc gga tct cag ccc act gat cgg agt tat tct ccc gga ggt agt agt	790
Val Gly Ser Gln Pro Thr Asp Arg Ser Tyr Ser Pro Gly Gly Ser Ser	
215 220 225	
agt caa ccg atg gag ttt tta ccg gcg aag ccg ttt tgc gag atg gag	838
Ser Gln Pro Met Glu Phe Leu Pro Ala Lys Arg Phe Ser Glu Met Glu	
230 235 240	
att gaa gaa gaa gaa gaa gcg agt ccg agg ttg ttt ggt gtt ccg att	886
Ile Glu Glu Glu Glu Glu Ala Ser Pro Arg Leu Phe Gly Val Pro Ile	
245 250 255	
ggg tta aaa ccg acg aga agt gaa ggt gtt cag gtg aag acg acg gcg	934
Gly Leu Lys Arg Thr Arg Ser Glu Gly Val Gln Val Lys Thr Thr Ala	
260 265 270	
gtg gtt ggg gaa aat tcc gat gag gag acg ccg tgg ttg aga cat tat	982
Val Val Gly Glu Asn Ser Asp Glu Glu Thr Pro Trp Leu Arg His Tyr	
275 280 285 290	
aat cga acc aat cag aga gtt tgt aat taa aaacgaacgg tttagatttg	1032
Asn Arg Thr Asn Gln Arg Val Cys Asn	
295	
tggtgtagat atgtgcgcga agtagacgat tacagctttt taagacaagc agagcacgtg	1092
tcccatctgt ttcaagaagt ttctgcaatc ttgacttctt cttttaacac tttgtgtttt	1152
ttattattta attaataaca ataaatgttc tttttcagtt ttgttttctt caaaaatagt	1212
tcggtgtgtt ctgacttttc cttttttt	1239
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Gln Arg Ser Ile Pro Thr Pro Phe Leu Thr Lys Thr Phe Asn Leu Val
 20 25 30

Glu Asp Ser Ser Ile Asp Asp Val Ile Ser Trp Asn Glu Asp Gly Ser
 35 40 45

Ser Phe Ile Val Trp Asn Pro Thr Asp Phe Ala Lys Asp Leu Leu Pro
 50 55 60

Lys His Phe Lys His Asn Asn Phe Ser Ser Phe Val Arg Gln Leu Asn
 65 70 75 80

Thr Tyr Gly Phe Lys Lys Val Val Pro Asp Arg Trp Glu Phe Ser Asn
 85 90 95

Asp Phe Phe Lys Arg Gly Glu Lys Arg Leu Leu Arg Glu Ile Gln Arg
 100 105 110

Arg Lys Ile Thr Thr Thr His Gln Thr Val Val Ala Pro Ser Ser Glu
 115 120 125

Gln Arg Asn Gln Thr Met Val Val Ser Pro Ser Asn Ser Gly Glu Asp
 130 135 140

Asn Asn Asn Asn Gln Val Met Ser Ser Ser Pro Ser Ser Trp Tyr Cys
 145 150 155 160

His Gln Thr Lys Thr Thr Gly Asn Gly Gly Leu Ser Val Glu Leu Leu
 165 170 175

Glu Glu Asn Glu Lys Leu Arg Ser Gln Asn Ile Gln Leu Asn Arg Glu
 180 185 190

Leu Thr Gln Met Lys Ser Ile Cys Asp Asn Ile Tyr Ser Leu Met Ser
 195 200 205

Asn Tyr Val Gly Ser Gln Pro Thr Asp Arg Ser Tyr Ser Pro Gly Gly
 210 215 220

Ser Ser Ser Gln Pro Met Glu Phe Leu Pro Ala Lys Arg Phe Ser Glu
 225 230 235 240

Met Glu Ile Glu Glu Glu Glu Glu Ala Ser Pro Arg Leu Phe Gly Val
245 250 255

Pro Ile Gly Leu Lys Arg Thr Arg Ser Glu Gly Val Gln Val Lys Thr
260 265 270

Thr Ala Val Val Gly Glu Asn Ser Asp Glu Glu Thr Pro Trp Leu Arg
275 280 285

His Tyr Asn Arg Thr Asn Gln Arg Val Cys Asn
290 295

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Met Glu Arg Phe Gln Gly His Ile Asn Pro Cys Phe Phe Asp Arg
1 5 10 15

aaa ccg gat gtg aga agc ctc gag gtt caa gga ttt gca gag gct caa 155
Lys Pro Asp Val Arg Ser Leu Glu Val Gln Gly Phe Ala Glu Ala Gln
20 25 30

agc ttt gct ttc aaa gaa aaa gag gaa gaa agc tta caa gat aca gtt 203
Ser Phe Ala Phe Lys Glu Lys Glu Glu Ser Leu Gln Asp Thr Val
35 40 45

cca ttt cta cag atg ctg caa agt gaa gac ccc tca tct ttt tta 251
Pro Phe Leu Gln Met Leu Gln Ser Glu Asp Pro Ser Ser Phe Phe Ser
50 55 60

atc aaa gag cca aac ttt ctg acg cta ctg tct ctt caa acc ctc aag 299
Ile Lys Glu Pro Asn Phe Leu Thr Leu Leu Ser Leu Gln Thr Leu Lys
65 70 75

gag cct tgg gaa ctc gaa aga tat ctt tca ctt gag gat tca caa ttt 347
Glu Pro Trp Glu Leu Glu Arg Tyr Leu Ser Leu Glu Asp Ser Gln Phe
80 85 90 95

cat tca ccg gtc caa tct gag acc aac cgc ttc atg gaa gga gcc aat 395
His Ser Pro Val Gln Ser Glu Thr Asn Arg Phe Met Glu Gly Ala Asn
100 105 110

caa gct gtg tca agc caa gaa att ccc ttt agc caa gca aac atg aca 443
Gln Ala Val Ser Ser Gln Glu Ile Pro Phe Ser Gln Ala Asn Met Thr
115 120 125

ctc cct tct tct acc tca tca cca ctc agt gca cat tca aga cga aag 491
Leu Pro Ser Ser Thr Ser Ser Pro Leu Ser Ala His Ser Arg Arg Lys
130 135 140

cgc aaa atc aac cac ttg ctg cct caa gaa atg act aga gaa aag aga Arg Lys Ile Asn His Leu Leu Pro Gln Glu Met Thr Arg Glu Lys Arg 145 150 155	539
aag agg agg aaa aca aaa cca agt aaa aac aat gaa gag att gag aat Lys Arg Arg Lys Thr Lys Pro Ser Lys Asn Asn Glu Glu Ile Glu Asn 160 165 170 175	587
caa aga ata aac cac att gct gtt gaa cga aac aga aga cgt caa atg Gln Arg Ile Asn His Ile Ala Val Glu Arg Asn Arg Arg Arg Gln Met 180 185 190	635
aac gaa cat atc aac tct ctc cgg gcc ctt ctc cca cct tcc tac atc Asn Glu His Ile Asn Ser Leu Arg Ala Leu Leu Pro Pro Ser Tyr Ile 195 200 205	683
caa cga gga gac caa gct tcc ata gta gga gga gca ata aac tac gtg Gln Arg Gly Asp Gln Ala Ser Ile Val Gly Gly Ala Ile Asn Tyr Val 210 215 220	731
aag gtc ctc gag caa atc ata caa tct ctc gaa tcg caa aag aga acg Lys Val Leu Glu Gln Ile Ile Gln Ser Leu Glu Ser Gln Lys Arg Thr 225 230 235	779
caa caa caa agt aac agt gag gta gta gaa aac gca ctt aat cat ctc Gln Gln Gln Ser Asn Ser Glu Val Val Glu Asn Ala Leu Asn His Leu 240 245 250 255	827
tca ggc att tcg tcg aac gac ctg tgg aca act ctt gaa gat caa act Ser Gly Ile Ser Ser Asn Asp Leu Trp Thr Thr Leu Glu Asp Gln Thr 260 265 270	875
tgt atc ccc aaa atc gaa gct aca gtg ata caa aac cat gtc agc ctt Cys Ile Pro Lys Ile Glu Ala Thr Val Ile Gln Asn His Val Ser Leu 275 280 285	923
aaa gtt caa tgt gag aag aaa caa gga caa ctt ctc aaa gga atc ata Lys Val Gln Cys Glu Lys Lys Gln Gly Gln Leu Leu Lys Gly Ile Ile 290 295 300	971
tca ctt gaa aag ctt aaa ctc act gtt ctt cat ctc aat atc act act Ser Leu Glu Lys Leu Lys Leu Thr Val Leu His Leu Asn Ile Thr Thr 305 310 315	1019
tcg tct cat tcc tct gtt tct tat tcc ttc aac ctc aag atg gaa gat Ser Ser His Ser Ser Val Ser Tyr Ser Phe Asn Leu Lys Met Glu Asp 320 325 330 335	1067
gag tgc gac tta gag tca gcc gac gag att acg gcg gct gtt cat cgg Glu Cys Asp Leu Glu Ser Ala Asp Glu Ile Thr Ala Ala Val His Arg 340 345 350	1115
att ttc gat att ccg aca att tga ttaaacacat ataattccaa aaatattaac Ile Phe Asp Ile Pro Thr Ile 355	1169

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1196

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Pro Asp Val Arg Ser Leu Glu Val Gln Gly Phe Ala Glu Ala Gln Ser
20 25 30

Phe Ala Phe Lys Glu Lys Glu Glu Ser Leu Gln Asp Thr Val Pro
35 40 45

Phe Leu Gln Met Leu Gln Ser Glu Asp Pro Ser Ser Phe Phe Ser Ile
50 55 60

Lys Glu Pro Asn Phe Leu Thr Leu Leu Ser Leu Gln Thr Leu Lys Glu
65 70 75 80

Pro Trp Glu Leu Glu Arg Tyr Leu Ser Leu Glu Asp Ser Gln Phe His
85 90 95

Ser Pro Val Gln Ser Glu Thr Asn Arg Phe Met Glu Gly Ala Asn Gln
100 105 110

Ala Val Ser Ser Gln Glu Ile Pro Phe Ser Gln Ala Asn Met Thr Leu
115 120 125

Pro Ser Ser Thr Ser Ser Pro Leu Ser Ala His Ser Arg Arg Lys Arg
130 135 140

Lys Ile Asn His Leu Leu Pro Gln Glu Met Thr Arg Glu Lys Arg Lys
145 150 155 160

Arg Arg Lys Thr Lys Pro Ser Lys Asn Asn Glu Glu Ile Glu Asn Gln
165 170 175

Arg Ile Asn His Ile Ala Val Glu Arg Asn Arg Arg Gln Met Asn
180 185 190

Glu His Ile Asn Ser Leu Arg Ala Leu Leu Pro Pro Ser Tyr Ile Gln
195 200 205

Arg Gly Asp Gln Ala Ser Ile Val Gly Gly Ala Ile Asn Tyr Val Lys
210 215 220

Val Leu Glu Gln Ile Ile Gln Ser Leu Glu Ser Gln Lys Arg Thr Gln
225 230 235 240

Gln Gln Ser Asn Ser Glu Val Val Glu Asn Ala Leu Asn His Leu Ser
245 250 255

Gly Ile Ser Ser Asn Asp Leu Trp Thr Thr Leu Glu Asp Gln Thr Cys
260 265 270

Ile Pro Lys Ile Glu Ala Thr Val Ile Gln Asn His Val Ser Leu Lys
275 280 285

Val Gln Cys Glu Lys Lys Gln Gly Gln Leu Leu Lys Gly Ile Ile Ser
290 295 300

Leu Glu Lys Leu Lys Leu Thr Val Leu His Leu Asn Ile Thr Thr Ser
305 310 315 320

Ser His Ser Ser Val Ser Tyr Ser Phe Asn Leu Lys Met Glu Asp Glu
325 330 335

Cys Asp Leu Glu Ser Ala Asp Glu Ile Thr Ala Ala Val His Arg Ile
340 345 350

Phe Asp Ile Pro Thr Ile
355

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<222> (51)..(512) <223> G1277

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Met Asp
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Ala Gly Val Ala Val Lys Ala Asp Val Ala Val Lys Met Lys Arg Glu
5 10 15

aga cca ttc aaa ggg atc aga atg aga aaa tgg ggg aaa tgg gtt gcg 152
Arg Pro Phe Lys Gly Ile Arg Met Arg Lys Trp Gly Lys Trp Val Ala
20 25 30

gag att cga gaa ccc aac aag cgt tca aga ctt tgg ctc ggc tct tac 200

Glu Ile Arg Glu Pro Asn Lys Arg Ser Arg Leu Trp Leu Gly Ser Tyr
 35 40 45 50
 tct act ccc gaa gcg gcg gcg cgt gca tac gac acg gct gtc ttt tac 248
 Ser Thr Pro Glu Ala Ala Ala Arg Ala Tyr Asp Thr Ala Val Phe Tyr
 55 60 65
 ctc aga gga coa act gct acg ctc aac ttc ccg gag ctt ctg ccg tgt 296
 Leu Arg Gly Pro Thr Ala Thr Leu Asn Phe Pro Glu Leu Leu Pro Cys
 70 75 80
 acc tcc gcc gag gat atg tca gcg gca acg atc agg aaa aag gcg acg 344
 Thr Ser Ala Glu Asp Met Ser Ala Ala Thr Ile Arg Lys Lys Ala Thr
 85 90 95
 gag gtg gga gct caa gta gat gcg ata ggg gcg acg gtg gtg cag aac 392
 Glu Val Gly Ala Gln Val Asp Ala Ile Gly Ala Thr Val Val Gln Asn
 100 105 110
 aac aaa cgc cgc cgc gtt ttt agt caa aag cgt gac ttt ggc gcc ggg 440
 Asn Lys Arg Arg Arg Val Phe Ser Gln Lys Arg Asp Phe Gly Gly Gly
 115 120 125 130
 tta tta gag ctt gtt gac ttg aac aag tta cct gac ccg gaa aat ctc 488
 Leu Leu Glu Leu Val Asp Leu Asn Lys Leu Pro Asp Pro Glu Asn Leu
 135 140 145
 gat gat gat ttg gtg gga aaa tag actgaaaaat aataataaaa tatcttacaa 542
 Asp Asp Asp Leu Val Gly Lys
 150
 ttgttgctgt agctatcgta cgcggaatgc ttgggcttgt gttatatgac tacgtggtta 602
 cggaagatt cctctgtttc gtcattgtat taaaatttaa tcccacaagt caaacatact 662
 gtacattatt cttaatttag tattttctta ttaatatcta tcatttgttt ggtgaacacc 722
 agaattattag actattaatg taacgagttt ttaatatctc gatcataata acaccaagct 782
 agttaaggt taatatcttg ttacgaagtc ttgagtaagt tcaattgtca tatatatgta 842
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 taataaaaaa 911
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 Arg Glu Arg Pro Phe Lys Gly Ile Arg Met Arg Lys Trp Gly Lys Trp
 20 25 30
 Val Ala Glu Ile Arg Glu Pro Asn Lys Arg Ser Arg Leu Trp Leu Gly

35

40

45

Ser Tyr Ser Thr Pro Glu Ala Ala Ala Arg Ala Tyr Asp Thr Ala Val
50 55 60

Phe Tyr Leu Arg Gly Pro Thr Ala Thr Leu Asn Phe Pro Glu Leu Leu
65 70 75 80

Pro Cys Thr Ser Ala Glu Asp Met Ser Ala Ala Thr Ile Arg Lys Lys
85 90 95

Ala Thr Glu Val Gly Ala Gln Val Asp Ala Ile Gly Ala Thr Val Val
100 105 110

Gln Asn Asn Lys Arg Arg Arg Val Phe Ser Gln Lys Arg Asp Phe Gly
115 120 125

Gly Gly Leu Leu Glu Leu Val Asp Leu Asn Lys Leu Pro Asp Pro Glu
130 135 140

Asn Leu Asp Asp Asp Leu Val Gly Lys
145 150

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Met Thr
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aaa tct gga gag aga cca aaa cag aga cag agg aaa ggg tta tgg tca 106
Lys Ser Gly Glu Arg Pro Lys Gln Arg Gln Arg Lys Gly Leu Trp Ser
5 10 15

cct gaa gaa gac cag aag ctc aag agt ttc atc ctc tct cgt ggc cat 154
Pro Glu Glu Asp Gln Lys Leu Lys Ser Phe Ile Leu Ser Arg Gly His
20 25 30

gct tgc tgg acc act gtt ccc atc cta gct gga ttg caa agg aat ggg 202
Ala Cys Trp Thr Thr Val Pro Ile Leu Ala Gly Leu Gln Arg Asn Gly
35 40 45 50

aaa agc tgc aga tta agg tgg att aat tac cta aga cca gga cta aag 250
Lys Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg Pro Gly Leu Lys
55 60 65

agg ggg tcg ttt agt gaa gaa gaa gaa gag acc atc ttg act tta cat 298
Arg Gly Ser Phe Ser Glu Glu Glu Glu Glu Thr Ile Leu Thr Leu His

	70	75	80	
tct tcc ttg ggt aac aag tgg tct cgg att gca aaa tat tta ccg gga				346
Ser Ser Leu Gly Asn Lys Trp Ser Arg Ile Ala Lys Tyr Leu Pro Gly	85	90	95	
aga aca gac aac gag att aag aac tat tgg cat tcc tat ctg aag aag				394
Arg Thr Asp Asn Glu Ile Lys Asn Tyr Trp His Ser Tyr Leu Lys Lys	100	105	110	
aga tgg ctc aaa tct caa cca caa ctc aaa agc caa ata tca gac ctc				442
Arg Trp Leu Lys Ser Gln Pro Gln Leu Lys Ser Gln Ile Ser Asp Leu	115	120	125	130
aca gaa tct cct tct tca cta ctt tct tgc ggg aaa aga aat ctg gaa				490
Thr Glu Ser Pro Ser Ser Leu Leu Ser Cys Gly Lys Arg Asn Leu Glu	135	140	145	
acc gaa acc cta gat cac gtg atc tcc ttc cag aaa ttt tca gag aat				538
Thr Glu Thr Leu Asp His Val Ile Ser Phe Gln Lys Phe Ser Glu Asn	150	155	160	
cca act tca tca cca tcc aaa gaa agc aac aac aac atg atc atg aac				586
Pro Thr Ser Ser Pro Ser Lys Glu Ser Asn Asn Asn Met Ile Met Asn	165	170	175	
aac agt aat aac ttg cct aaa ctg ttc ttc tct gag tgg atc agt tct				634
Asn Ser Asn Asn Leu Pro Lys Leu Phe Phe Ser Glu Trp Ile Ser Ser	180	185	190	
tca aat cca cac atc gat tac tcc tct gct ttt aca gat tcc aag cac				682
Ser Asn Pro His Ile Asp Tyr Ser Ser Ala Phe Thr Asp Ser Lys His	195	200	205	210
att aat gaa act caa gat caa atc aat gaa gag gaa gtg atg atg atc				730
Ile Asn Glu Thr Gln Asp Gln Ile Asn Glu Glu Glu Val Met Met Ile	215	220	225	
aat aac aac aac tac tct tca ctt gag gat gtc atg ctc cgt aca gat				778
Asn Asn Asn Asn Tyr Ser Ser Leu Glu Asp Val Met Leu Arg Thr Asp	230	235	240	
ttt ttg cag cct gat cat gaa tat gca aat tat tat tct tct gga gat				826
Phe Leu Gln Pro Asp His Glu Tyr Ala Asn Tyr Tyr Ser Ser Gly Asp	245	250	255	
ttc ttc atc aac agt gac caa aat tat gtc taa gaagagttaa tatgatogta				879
Phe Phe Ile Asn Ser Asp Gln Asn Tyr Val	260	265		
agaggaacat aagctagtta cttgtgttac agc				912
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Met Thr Lys Ser Gly Glu Arg Pro Lys Gln Arg Gln Arg Lys Gly Leu	1	5	10	15

Trp Ser Pro Glu Glu Asp Gln Lys Leu Lys Ser Phe Ile Leu Ser Arg
 20 25 30

Gly His Ala Cys Trp Thr Thr Val Pro Ile Leu Ala Gly Leu Gln Arg
 35 40 45

Asn Gly Lys Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg Pro Gly
 50 55 60

Leu Lys Arg Gly Ser Phe Ser Glu Glu Glu Glu Glu Thr Ile Leu Thr
 65 70 75 80

Leu His Ser Ser Leu Gly Asn Lys Trp Ser Arg Ile Ala Lys Tyr Leu
 85 90 95

Pro Gly Arg Thr Asp Asn Glu Ile Lys Asn Tyr Trp His Ser Tyr Leu
 100 105 110

Lys Lys Arg Trp Leu Lys Ser Gln Pro Gln Leu Lys Ser Gln Ile Ser
 115 120 125

Asp Leu Thr Glu Ser Pro Ser Ser Leu Leu Ser Cys Gly Lys Arg Asn
 130 135 140

Leu Glu Thr Glu Thr Leu Asp His Val Ile Ser Phe Gln Lys Phe Ser
 145 150 155 160

Glu Asn Pro Thr Ser Ser Pro Ser Lys Glu Ser Asn Asn Asn Met Ile
 165 170 175

Met Asn Asn Ser Asn Asn Leu Pro Lys Leu Phe Phe Ser Glu Trp Ile
 180 185 190

Ser Ser Ser Asn Pro His Ile Asp Tyr Ser Ser Ala Phe Thr Asp Ser
 195 200 205

Lys His Ile Asn Glu Thr Gln Asp Gln Ile Asn Glu Glu Glu Val Met
 210 215 220

Met Ile Asn Asn Asn Asn Tyr Ser Ser Leu Glu Asp Val Met Leu Arg
 225 230 235 240

Thr Asp Phe Leu Gln Pro Asp His Glu Tyr Ala Asn Tyr Tyr Ser Ser
245 250 255

Gly Asp Phe Phe Ile Asn Ser Asp Gln Asn Tyr Val
260 265

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Met Asn Pro Gln Ala Asn Asp Arg
1 5

aag gag ttt cag gga gat tgt tcg gcg acg gga gat ctc acg gca aag 161
Lys Glu Phe Gln Gly Asp Cys Ser Ala Thr Gly Asp Leu Thr Ala Lys
10 15 20

cac gat tca gct gga gga aac gga ggt gga ggt gct agg tat aag ctg 209
His Asp Ser Ala Gly Gly Asn Gly Gly Gly Ala Arg Tyr Lys Leu
25 30 35 40

atg tca ccg gcc aag ctt ccg atc tcg agg tcg act gat atc acg att 257
Met Ser Pro Ala Lys Leu Pro Ile Ser Arg Ser Thr Asp Ile Thr Ile
45 50 55

cct cct ggg ttg agt ccg act tcg ttt ttg gaa tct cct gtt ttc atc 305
Pro Pro Gly Leu Ser Pro Thr Ser Phe Leu Glu Ser Pro Val Phe Ile
60 65 70

tcc aac atc aag cca gaa cct tcc cct act act ggt tct ttg ttc aag 353
Ser Asn Ile Lys Pro Glu Pro Ser Pro Thr Thr Gly Ser Leu Phe Lys
75 80 85

cct cga cca gtg cac att tct gct agc tca agt tct tat aca ggc agg 401
Pro Arg Pro Val His Ile Ser Ala Ser Ser Ser Tyr Thr Gly Arg
90 95 100

ggg ttc cat cag aac acc ttt act gag cag aag tcc agt gaa ttt gag 449
Gly Phe His Gln Asn Thr Phe Thr Glu Gln Lys Ser Ser Glu Phe Glu
105 110 115 120

ttc aga cct cct gca tca aat atg gta tat gca gag ctt ggc aag att 497
Phe Arg Pro Pro Ala Ser Asn Met Val Tyr Ala Glu Leu Gly Lys Ile
125 130 135

aga agt gag cca cca gta cat ttt caa ggc cag ggc cat gga tcc tca 545
Arg Ser Glu Pro Pro Val His Phe Gln Gly Gln Gly His Gly Ser Ser
140 145 150

cac tca cct tct tcg atc agt gat gct gca ggt tcc tca agt gag cta 593
His Ser Pro Ser Ser Ile Ser Asp Ala Ala Gly Ser Ser Ser Glu Leu

155	160	165	
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ccg gct gga tct gat caa gag gaa tca atc cag act tcc caa aat gac Pro Ala Gly Ser Asp Gln Glu Ser Ile Gln Thr Ser Gln Asn Asp 185 190 195 200			689
tcc aga gga agc act cca tcc atc ttg gct gat gat ggt tat aac tgg Ser Arg Gly Ser Thr Pro Ser Ile Leu Ala Asp Asp Gly Tyr Asn Trp 205 210 215			737
aga aaa tat ggt caa aag cat gtc aaa ggg agt gaa ttt ccc cgg agc Arg Lys Tyr Gly Gln Lys His Val Lys Gly Ser Glu Phe Pro Arg Ser 220 225 230			785
tat tat aaa tgt aca cat cct aat tgt gaa gtg aaa aag tta ttt gaa Tyr Tyr Lys Cys Thr His Pro Asn Cys Glu Val Lys Lys Leu Phe Glu 235 240 245			833
aga tct cat gat ggg cag atc acc gat att ata tac aag ggt aca cat Arg Ser His Asp Gly Gln Ile Thr Asp Ile Ile Tyr Lys Gly Thr His 250 255 260			881
gac cat cct aaa cct caa cct ggt cgc cga aac tct ggt ggt atg gct Asp His Pro Lys Pro Gln Pro Gly Arg Arg Asn Ser Gly Gly Met Ala 265 270 275 280			929
gca caa gaa gaa agg cta gac aag tat cct tct tca act ggc cga gat Ala Gln Glu Glu Arg Leu Asp Lys Tyr Pro Ser Ser Thr Gly Arg Asp 285 290 295			977
gag aag gga tct ggc gtc tac aac ttg tct aac ccc aat gaa caa act Glu Lys Gly Ser Gly Val Tyr Asn Leu Ser Asn Pro Asn Glu Gln Thr 300 305 310			1025
ggt aac cct gaa gta cct cct atc tca gca tct gac gat ggt gga gaa Gly Asn Pro Glu Val Pro Pro Ile Ser Ala Ser Asp Asp Gly Gly Glu 315 320 325			1073
gcg gca gcg tca aat agg aat aaa gat gag ccg gac gat gat gat cca Ala Ala Ala Ser Asn Arg Asn Lys Asp Glu Pro Asp Asp Asp Pro 330 335 340			1121
ttc tca aaa cgg agg agg atg gag ggt gcg atg gaa ata act cca cta Phe Ser Lys Arg Arg Arg Met Glu Gly Ala Met Glu Ile Thr Pro Leu 345 350 355 360			1169
gtg aaa ccc atc cgg gag cct cgg gtt gtt gtt caa act ctg agt gag Val Lys Pro Ile Arg Glu Pro Arg Val Val Val Gln Thr Leu Ser Glu 365 370 375			1217
gtt gac att ctg gat gat ggt tat aga tgg cgc aaa tat ggg cag aaa Val Asp Ile Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln Lys 380 385 390			1265

gtc gta agg ggg aac cca aat ccc agg agc tac tac aaa tgc aca gct 1313
 Val Val Arg Gly Asn Pro Asn Pro Arg Ser Tyr Tyr Lys Cys Thr Ala
 395 400 405

cat gga tgc cca gtg aga aaa cac gtg gag aga gca tca cat gat cca 1361
 His Gly Cys Pro Val Arg Lys His Val Glu Arg Ala Ser His Asp Pro
 410 415 420

aaa gct gta ata aca aca tac gaa ggc aaa cac gat cat gat gtt ccc 1409
 Lys Ala Val Ile Thr Thr Tyr Glu Gly Lys His Asp His Asp Val Pro
 425 430 435 440

act tca aag tct agc agc aat cac gaa atc cag cct cgg ttc aga cca 1457
 Thr Ser Lys Ser Ser Ser Asn His Glu Ile Gln Pro Arg Phe Arg Pro
 445 450 455

gat gaa aca gac acc atc agc ctc aat ctt ggt gtt gga atc tca tct 1505
 Asp Glu Thr Asp Thr Ile Ser Leu Asn Leu Gly Val Gly Ile Ser Ser
 460 465 470

gat gga cct aac cac gct tcc aac gaa cat cag cac cag aat caa caa 1553
 Asp Gly Pro Asn His Ala Ser Asn Glu His Gln His Gln Asn Gln Gln
 475 480 485

ctt gtc aac caa act cac cca aat gga gtc aat ttc agg ttt gtt cat 1601
 Leu Val Asn Gln Thr His Pro Asn Gly Val Asn Phe Arg Phe Val His
 490 495 500

gct agt ccc atg tca tcc tac tat gct agc tta aat agc ggt atg aat 1649
 Ala Ser Pro Met Ser Ser Tyr Tyr Ala Ser Leu Asn Ser Gly Met Asn
 505 510 515 520

cag tac ggc cag aga gaa aca aag aac gag act caa aat ggt gac atc 1697
 Gln Tyr Gly Gln Arg Glu Thr Lys Asn Glu Thr Gln Asn Met Gly Asp Ile
 525 530 535

tcg tcc ttg aac aat tca tct tac cca tat ccg ccc aac atg ggg aga 1745
 Ser Ser Leu Asn Asn Ser Ser Tyr Pro Tyr Pro Pro Asn Met Gly Arg
 540 545 550

gta caa tcg ggt ccg taa aacaaaaagt aagcaacatt atgtacggga 1793
 Val Gln Ser Gly Pro
 555

tctttttagg ttaggaatgg gacgaggcct tgttctatat aattcctatt tcttcacaga 1853

gagctgatct tgattcaaac tatctccacc atatatatatt gtttgtgtca cctgtattga 1913

gttccaaaaa tgttatgtaa aaatacacaa caagatgtta atgcttttat ttaacaaaga 1973

aacagcaata ttactacaaa aaaaaaaaaa aaaaa 2008

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Gly Gly Gly Ala Arg Tyr Lys Leu Met Ser Pro Ala Lys Leu Pro Ile
35 40 45

Ser Arg Ser Thr Asp Ile Thr Ile Pro Pro Gly Leu Ser Pro Thr Ser
50 55 60

Phe Leu Glu Ser Pro Val Phe Ile Ser Asn Ile Lys Pro Glu Pro Ser
65 70 75 80

Pro Thr Thr Gly Ser Leu Phe Lys Pro Arg Pro Val His Ile Ser Ala
85 90 95

Ser Ser Ser Ser Tyr Thr Gly Arg Gly Phe His Gln Asn Thr Phe Thr
100 105 110

Glu Gln Lys Ser Ser Glu Phe Glu Phe Arg Pro Pro Ala Ser Asn Met
115 120 125

Val Tyr Ala Glu Leu Gly Lys Ile Arg Ser Glu Pro Pro Val His Phe
130 135 140

Gln Gly Gln Gly His Gly Ser Ser His Ser Pro Ser Ser Ile Ser Asp
145 150 155 160

Ala Ala Gly Ser Ser Ser Glu Leu Ser Arg Pro Thr Pro Pro Cys Gln
165 170 175

Met Thr Pro Thr Ser Ser Asp Ile Pro Ala Gly Ser Asp Gln Glu Glu
180 185 190

Ser Ile Gln Thr Ser Gln Asn Asp Ser Arg Gly Ser Thr Pro Ser Ile
195 200 205

Leu Ala Asp Asp Gly Tyr Asn Trp Arg Lys Tyr Gly Gln Lys His Val
210 215 220

Lys Gly Ser Glu Phe Pro Arg Ser Tyr Tyr Lys Cys Thr His Pro Asn
225 230 235 240

Cys Glu Val Lys Lys Leu Phe Glu Arg Ser His Asp Gly Gln Ile Thr
 245 250 255

Asp Ile Ile Tyr Lys Gly Thr His Asp His Pro Lys Pro Gln Pro Gly
 260 265 270

Arg Arg Asn Ser Gly Gly Met Ala Ala Gln Glu Glu Arg Leu Asp Lys
 275 280 285

Tyr Pro Ser Ser Thr Gly Arg Asp Glu Lys Gly Ser Gly Val Tyr Asn
 290 295 300

Leu Ser Asn Pro Asn Glu Gln Thr Gly Asn Pro Glu Val Pro Pro Ile
 305 310 315 320

Ser Ala Ser Asp Asp Gly Gly Glu Ala Ala Ala Ser Asn Arg Asn Lys
 325 330 335

Asp Glu Pro Asp Asp Asp Asp Pro Phe Ser Lys Arg Arg Arg Met Glu
 340 345 350

Gly Ala Met Glu Ile Thr Pro Leu Val Lys Pro Ile Arg Glu Pro Arg
 355 360 365

Val Val Val Gln Thr Leu Ser Glu Val Asp Ile Leu Asp Asp Gly Tyr
 370 375 380

Arg Trp Arg Lys Tyr Gly Gln Lys Val Val Arg Gly Asn Pro Asn Pro
 385 390 395 400

Arg Ser Tyr Tyr Lys Cys Thr Ala His Gly Cys Pro Val Arg Lys His
 405 410 415

Val Glu Arg Ala Ser His Asp Pro Lys Ala Val Ile Thr Thr Tyr Glu
 420 425 430

Gly Lys His Asp His Asp Val Pro Thr Ser Lys Ser Ser Ser Asn His
 435 440 445

Glu Ile Gln Pro Arg Phe Arg Pro Asp Glu Thr Asp Thr Ile Ser Leu
 450 455 460

Asn Leu Gly Val Gly Ile Ser Ser Asp Gly Pro Asn His Ala Ser Asn
465 470 475 480

Glu His Gln His Gln Asn Gln Gln Leu Val Asn Gln Thr His Pro Asn
485 490 495

Gly Val Asn Phe Arg Phe Val His Ala Ser Pro Met Ser Ser Tyr Tyr
500 505 510

Ala Ser Leu Asn Ser Gly Met Asn Gln Tyr Gly Gln Arg Glu Thr Lys
515 520 525

Asn Glu Thr Gln Asn Gly Asp Ile Ser Ser Leu Asn Asn Ser Ser Tyr
530 535 540

Pro Tyr Pro Pro Asn Met Gly Arg Val Gln Ser Gly Pro
545 550 555

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aatcggtatt a atg gtg gag tct ctg ttc ccg agc atc gaa aac aca ggt 170
Met Val Glu Ser Leu Phe Pro Ser Ile Glu Asn Thr Gly
1 5 10

gaa tcg tct cga aga aag aag ccg agg ata tca gag acg gcg gag gcg 218
Glu Ser Ser Arg Arg Lys Lys Pro Arg Ile Ser Glu Thr Ala Glu Ala
15 20 25

gag ata gag gca cga cgt gtc aac gaa gaa agc ttg aag aga tgg aaa 266
Glu Ile Glu Ala Arg Arg Val Asn Glu Glu Ser Leu Lys Arg Trp Lys
30 35 40 45

acg aat cgt gtg caa cag atc tac gct tgt aag ctc gtc gaa gct tta 314
Thr Asn Arg Val Gln Gln Ile Tyr Ala Cys Lys Leu Val Glu Ala Leu
50 55 60

cgc cga gtt cgt cag aga tct tcc acc acc agc aac aac gag acc gat 362
Arg Arg Val Arg Gln Arg Ser Ser Thr Thr Ser Asn Asn Glu Thr Asp
65 70 75

aaa ctc gtc tcc gcc gcg gcg agg gag ata cgt gat acg gcg gat cga 410
Lys Leu Val Ser Gly Ala Ala Arg Glu Ile Arg Asp Thr Ala Asp Arg
80 85 90

gtt cta got gcg tcc gct cgt ggt acg act cgg tgg agc aga gcg att 458
Val Leu Ala Ala Ser Ala Arg Gly Thr Thr Arg Trp Ser Arg Ala Ile
95 100 105

tta gcg agt cgc gtc cga gcg aag ctg aag aaa cat aga aag gcg aaa 506
Leu Ala Ser Arg Val Arg Ala Lys Leu Lys Lys His Arg Lys Ala Lys
110 115 120 125

aag tca acg gga aat tgt aaa tcg aga aaa ggt ctc acg gag acg aat 554
Lys Ser Thr Gly Asn Cys Lys Ser Arg Lys Gly Leu Thr Glu Thr Asn
130 135 140

cgg att aag tta ccg gcg gtt gag aga aaa ctg aag att ctt ggc cgt 602
Arg Ile Lys Leu Pro Ala Val Glu Arg Lys Leu Lys Ile Leu Gly Arg
145 150 155

ttg gtt oct ggt tgc cgg aaa gtc tct gta ccg aat ctt tta gat gaa 650
Leu Val Pro Gly Cys Arg Lys Val Ser Val Pro Asn Leu Asp Glu
160 165 170

gcg acc gat tac atc gca gcg tta gag atg cag gtt cga gcc atg gag 698
Ala Thr Asp Tyr Ile Ala Ala Leu Glu Met Gln Val Arg Ala Met Glu
175 180 185

gct ctc gcc gaa ctt tta acc gca gcc gca cca cgg acg acg ttg acc 746
Ala Leu Ala Glu Leu Leu Thr Ala Ala Ala Pro Arg Thr Thr Leu Thr
190 195 200 205

gga act taa cgcgccagc tagttgtca gttgttaatt agcttttctt 795
Gly Thr

ttacottttt accootttat ttggtttca agtggttttt tttctcgtc gacgcgatt 855

taatttatta aattca 871

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Arg Arg Lys Lys Pro Arg Ile Ser Glu Thr Ala Glu Ala Glu Ile Glu
20 25 30

Ala Arg Arg Val Asn Glu Glu Ser Leu Lys Arg Trp Lys Thr Asn Arg
35 40 45

Val Gln Gln Ile Tyr Ala Cys Lys Leu Val Glu Ala Leu Arg Arg Val
50 55 60

Arg Gln Arg Ser Ser Thr Thr Ser Asn Asn Glu Thr Asp Lys Leu Val
65 70 75 80

Ser Gly Ala Ala Arg Glu Ile Arg Asp Thr Ala Asp Arg Val Leu Ala
85 90 95

Ala Ser Ala Arg Gly Thr Thr Arg Trp Ser Arg Ala Ile Leu Ala Ser
100 105 110

Arg Val Arg Ala Lys Leu Lys Lys His Arg Lys Ala Lys Lys Ser Thr
115 120 125

Gly Asn Cys Lys Ser Arg Lys Gly Leu Thr Glu Thr Asn Arg Ile Lys
130 135 140

Leu Pro Ala Val Glu Arg Lys Leu Lys Ile Leu Gly Arg Leu Val Pro
145 150 155 160

Gly Cys Arg Lys Val Ser Val Pro Asn Leu Leu Asp Glu Ala Thr Asp
165 170 175

Tyr Ile Ala Ala Leu Glu Met Gln Val Arg Ala Met Glu Ala Leu Ala
180 185 190

Glu Leu Leu Thr Ala Ala Ala Pro Arg Thr Thr Leu Thr Gly Thr
195 200 205

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atataaccaa ttcttgattt atacttaaaa cacacattat acatctttct catcatagtt 180

tgtatcaatt tcctagagta aactacctaa aggaataaaa aaatctattt tgggaatcat 240

atactaaaa atg gaa gga aga gat atg tta agt tgg gag caa aag aca ttg 291
Met Glu Gly Arg Asp Met Leu Ser Trp Glu Gln Lys Thr Leu
1 5 10

cta agc gag ctt atc aat gga ttt gat gcg gcc aaa aag ctt cag gca 339
Leu Ser Glu Leu Ile Asn Gly Phe Asp Ala Ala Lys Lys Leu Gln Ala
15 20 25 30

cga ctt aga gaa gct ccg tcg ccg tcg tca tca ttt tca tca ccg gcg 387
Arg Leu Arg Glu Ala Pro Ser Pro Ser Ser Ser Phe Ser Ser Pro Ala
35 40 45

acg gct gtt gct gag act aac gag att ctg gtg aag cag ata gtt tct Thr Ala Val Ala Glu Thr Asn Glu Ile Leu Val Lys Gln Ile Val Ser 50 55 60	435
tcc tac gag aga tct ctt ctt ctg cta aac tgg tca tcc tca ccg agc Ser Tyr Glu Arg Ser Leu Leu Leu Leu Asn Trp Ser Ser Ser Pro Ser 65 70 75	483
gta caa ctt att ccg acg ccg gtt act gta gtc ccg gtg gca aat ccc Val Gln Leu Ile Pro Thr Pro Val Thr Val Val Pro Val Ala Asn Pro 80 85 90	531
ggc agt gtt cca gaa tct ccg gca tcg ata aac gga agt ccg aga agt Gly Ser Val Pro Glu Ser Pro Ala Ser Ile Asn Gly Ser Pro Arg Ser 95 100 105 110	579
gaa gag ttt gcc gat gga gga ggt tct agc gag agt cat cat cgc caa Glu Glu Phe Ala Asp Gly Gly Gly Ser Ser Glu Ser His His Arg Gln 115 120 125	627
gat tac att ttc aat tca aag aaa aga aag atg tta cca aag tgg tca Asp Tyr Ile Phe Asn Ser Lys Lys Arg Lys Met Leu Pro Lys Trp Ser 130 135 140	675
gaa aaa gtg aga ata agc cca gag aga ggc tta gaa gga cct caa gat Glu Lys Val Arg Ile Ser Pro Glu Arg Gly Leu Glu Gly Pro Gln Asp 145 150 155	723
gat gtc ttt agc tgg aga aaa tat ggt caa aaa gac att tta ggc gcc Asp Val Phe Ser Trp Arg Lys Tyr Gly Gln Lys Asp Ile Leu Gly Ala 160 165 170	771
aaa ttc cca agg agt tat tac aga tgc aca cat cgt agc aca caa aac Lys Phe Pro Arg Ser Tyr Tyr Arg Cys Thr His Arg Ser Thr Gln Asn 175 180 185 190	819
tgt tgg gca acg aaa caa gtc cag aga tca gac ggg gat gct acg gtt Cys Trp Ala Thr Lys Gln Val Gln Arg Ser Asp Gly Asp Ala Thr Val 195 200 205	867
ttc gaa gtg acg tac aga gga aca cac act tgt tgc cag gcg atc aca Phe Glu Val Thr Tyr Arg Gly Thr His Thr Cys Ser Gln Ala Ile Thr 210 215 220	915
aga aca cca cca tta gcc tgc ccg gag aag cga caa gac acc aga gtc Arg Thr Pro Pro Leu Ala Ser Pro Glu Lys Arg Gln Asp Thr Arg Val 225 230 235	963
aaa cca gcc att acc caa aag cca aag gat att ctc gag agt ctt aaa Lys Pro Ala Ile Thr Gln Lys Pro Lys Asp Ile Leu Glu Ser Leu Lys 240 245 250	1011
tcc aac tta acc gtt cga acc gat ggg ctt gat gat ggt aaa gac gtt Ser Asn Leu Thr Val Arg Thr Asp Gly Leu Asp Asp Gly Lys Asp Val 255 260 265 270	1059

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 Phe Ser Phe Pro Asp Thr Pro Phe Tyr Asn Tyr Gly Thr Ile Asn
 275 280 285

ggc gag ttc ggc cac gtg gag agt tct ccg atc ttc gac gtt gtt gac 1155
 Gly Glu Phe Gly His Val Glu Ser Ser Pro Ile Phe Asp Val Val Asp
 290 295 300

tgg ttc aat cca acg gtc gag att gac aca act ttc ccc gcg ttt tta 1203
 Trp Phe Asn Pro Thr Val Glu Ile Asp Thr Thr Phe Pro Ala Phe Leu
 305 310 315

cac gag tcg att tat tat taa ttaaaatttg taacagagaa atagatagta 1254
 His Glu Ser Ile Tyr Tyr
 320

actagtaagt aatgatcagc gagagttaaa acataaaaagt acttagagta atctaacgat 1314

gcataataag gaatgttcaa caggacttga acatgatctc aatactaaga gagatttatc 1374

tagctactgg tagtagccgc agacttcttg ttgtagcttc acttactttt tgttgctt 1432

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Glu Leu Ile Asn Gly Phe Asp Ala Ala Lys Lys Leu Gln Ala Arg Leu
 20 25 30

Arg Glu Ala Pro Ser Pro Ser Ser Ser Phe Ser Ser Pro Ala Thr Ala
 35 40 45

Val Ala Glu Thr Asn Glu Ile Leu Val Lys Gln Ile Val Ser Ser Tyr
 50 55 60

Glu Arg Ser Leu Leu Leu Leu Asn Trp Ser Ser Ser Pro Ser Val Gln
 65 70 75 80

Leu Ile Pro Thr Pro Val Thr Val Val Pro Val Ala Asn Pro Gly Ser
 85 90 95

Val Pro Glu Ser Pro Ala Ser Ile Asn Gly Ser Pro Arg Ser Glu Glu
 100 105 110

Phe Ala Asp Gly Gly Gly Ser Ser Glu Ser His His Arg Gln Asp Tyr
 115 120 125

Ile Phe Asn Ser Lys Lys Arg Lys Met Leu Pro Lys Trp Ser Glu Lys
130 135 140

Val Arg Ile Ser Pro Glu Arg Gly Leu Glu Gly Pro Gln Asp Asp Val
145 150 155 160

Phe Ser Trp Arg Lys Tyr Gly Gln Lys Asp Ile Leu Gly Ala Lys Phe
165 170 175

Pro Arg Ser Tyr Tyr Arg Cys Thr His Arg Ser Thr Gln Asn Cys Trp
180 185 190

Ala Thr Lys Gln Val Gln Arg Ser Asp Gly Asp Ala Thr Val Phe Glu
195 200 205

Val Thr Tyr Arg Gly Thr His Thr Cys Ser Gln Ala Ile Thr Arg Thr
210 215 220

Pro Pro Leu Ala Ser Pro Glu Lys Arg Gln Asp Thr Arg Val Lys Pro
225 230 235 240

Ala Ile Thr Gln Lys Pro Lys Asp Ile Leu Glu Ser Leu Lys Ser Asn
245 250 255

Leu Thr Val Arg Thr Asp Gly Leu Asp Asp Gly Lys Asp Val Phe Ser
260 265 270

Phe Pro Asp Thr Pro Pro Phe Tyr Asn Tyr Gly Thr Ile Asn Gly Glu
275 280 285

Phe Gly His Val Glu Ser Ser Pro Ile Phe Asp Val Val Asp Trp Phe
290 295 300

Asn Pro Thr Val Glu Ile Asp Thr Thr Phe Pro Ala Phe Leu His Glu
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Ser Ile Tyr Tyr

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Met Asp	
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ttt gac gag gag cta aat ctt tgt att acg aaa ggt aaa aat gtt gat	164
Phe Asp Glu Glu Leu Asn Leu Cys Ile Thr Lys Gly Lys Asn Val Asp	
5 10 15	
cat tct ttt gga gga gaa gct tct tcc acg tcc cca aga tct atg aag	212
His Ser Phe Gly Gly Glu Ala Ser Ser Thr Ser Pro Arg Ser Met Lys	
20 25 30	
aaa atg aag agt cct agt cgt cct aaa ccc tat ttc caa tcc tct tct	260
Lys Met Lys Ser Pro Ser Arg Pro Lys Pro Tyr Phe Gln Ser Ser Ser	
35 40 45 50	
tct cct tat tcg tta gag gct ttc cct ttt tct ctc gat cca aca ctt	308
Ser Pro Tyr Ser Leu Glu Ala Phe Pro Phe Ser Leu Asp Pro Thr Leu	
55 60 65	
cag aat cag caa caa caa ctc gga tca tac gtt ccg gta ctt gag caa	356
Gln Asn Gln Gln Gln Gln Leu Gly Ser Tyr Val Pro Val Leu Glu Gln	
70 75 80	
cga caa gac ccg aca atg caa gcc cag aag caa atg atc tcc ttt agt	404
Arg Gln Asp Pro Thr Met Gln Gly Gln Lys Gln Met Ile Ser Phe Ser	
85 90 95	
cct caa caa caa caa cag cag cag cag tat atg gcc cag tac tgg agt	452
Pro Gln Gln Gln Gln Gln Gln Gln Tyr Met Ala Gln Tyr Trp Ser	
100 105 110	
gac aca ttg aat ctg agt cca aga gga aga atg atg atg atg agc	500
Asp Thr Leu Asn Leu Ser Pro Arg Gly Arg Met Met Met Met Ser	
115 120 125 130	
caa gaa gct gtt caa cct tac atc gca acg aag ctg tac aga gga gtg	548
Gln Glu Ala Val Gln Pro Tyr Ile Ala Thr Lys Leu Tyr Arg Gly Val	
135 140 145	
aga caa cgt caa tgg gga aaa tgg gtc gca gag atc cgt aag cca cga	596
Arg Gln Arg Gln Trp Gly Lys Trp Val Ala Glu Ile Arg Lys Pro Arg	
150 155 160	
agc agg gca cgt ctt tgg ctt ggt acc ttt gat aca gct gaa gaa gct	644
Ser Arg Ala Arg Leu Trp Leu Gly Thr Phe Asp Thr Ala Glu Glu Ala	
165 170 175	
gcc atg gcc tac gac cgc caa gcc ttc aaa tta cga gcc cac agc gca	692
Ala Met Ala Tyr Asp Arg Gln Ala Phe Lys Leu Arg Gly His Ser Ala	
180 185 190	
aca ctg aat ttc ccg gag cat ttt gtg aat aag gaa agc gag ctg cat	740
Thr Leu Asn Phe Pro Glu His Phe Val Asn Lys Glu Ser Glu Leu His	
195 200 205 210	

gat tca aac tgc tgc gat cag aaa gaa cct gaa acg cca cag cca agc 788
 Asp Ser Asn Ser Ser Asp Gln Lys Glu Pro Glu Thr Pro Gln Pro Ser
 215 220 225

gag gtt aac ttg gag agc aag gaa cta ccg gtg att gat gtt ggg aga 836
 Glu Val Asn Leu Glu Ser Lys Glu Leu Pro Val Ile Asp Val Gly Arg
 230 235 240

gag gaa ggt atg gct gag gca tgg tac aat gcc att aca tgc gga tgg 884
 Glu Glu Gly Met Ala Glu Ala Trp Tyr Asn Ala Ile Thr Ser Gly Trp
 245 250 255

ggt cct gaa agt cct ctt tgg gat gat ttg gat agt tct cat cag ttt 932
 Gly Pro Glu Ser Pro Leu Trp Asp Asp Leu Asp Ser Ser His Gln Phe
 260 265 270

tca tca gaa agc tca tct tct cct ctc tct tgt cct atg agg cct 980
 Ser Ser Glu Ser Ser Ser Ser Pro Leu Ser Cys Pro Met Arg Pro
 275 280 285 290

ttc ttt tga aaaagtttat aaaccacat tgtgtgtag gttatagttt 1029
 Phe Phe

agggttatgc toattggcat ttggatggag gcaatttttg tgatctccca ttccaccaca 1089

tatcagtcac tatatgtgtc taccttttct ctgtatttct atcattatca ttgtttttat 1149

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aaaaaaaaa aaaaaaa 1226

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Val Asp His Ser Phe Gly Gly Glu Ala Ser Ser Thr Ser Pro Arg Ser
 20 25 30

Met Lys Lys Met Lys Ser Pro Ser Arg Pro Lys Pro Tyr Phe Gln Ser
 35 40 45

Ser Ser Ser Pro Tyr Ser Leu Glu Ala Phe Pro Phe Ser Leu Asp Pro
 50 55 60

Thr Leu Gln Asn Gln Gln Gln Leu Gly Ser Tyr Val Pro Val Leu
 65 70 75 80

Glu Gln Arg Gln Asp Pro Thr Met Gln Gly Gln Lys Gln Met Ile Ser
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Phe Ser Pro Gln Gln Gln Gln Gln Gln Tyr Met Ala Gln Tyr
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Trp Ser Asp Thr Leu Asn Leu Ser Pro Arg Gly Arg Met Met Met Met
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Met Ser Gln Glu Ala Val Gln Pro Tyr Ile Ala Thr Lys Leu Tyr Arg
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Gly Val Arg Gln Arg Gln Trp Gly Lys Trp Val Ala Glu Ile Arg Lys
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Pro Arg Ser Arg Ala Arg Leu Trp Leu Gly Thr Phe Asp Thr Ala Glu
165 170 175

Glu Ala Ala Met Ala Tyr Asp Arg Gln Ala Phe Lys Leu Arg Gly His
180 185 190

Ser Ala Thr Leu Asn Phe Pro Glu His Phe Val Asn Lys Glu Ser Glu
195 200 205

Leu His Asp Ser Asn Ser Ser Asp Gln Lys Glu Pro Glu Thr Pro Gln
210 215 220

Pro Ser Glu Val Asn Leu Glu Ser Lys Glu Leu Pro Val Ile Asp Val
225 230 235 240

Gly Arg Glu Glu Gly Met Ala Glu Ala Trp Tyr Asn Ala Ile Thr Ser
245 250 255

Gly Trp Gly Pro Glu Ser Pro Leu Trp Asp Asp Leu Asp Ser Ser His
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 Arg Arg Arg Gln Met Asn Val His Leu Asn Ser Leu Arg Ser Ile Ile
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 Pro Ser Ser Tyr Ile Gln Arg Gly Asp Gln Ala Ser Ile Val Gly Gly
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 Ala Ile Asp Phe Val Lys Ile Leu Glu Gln Gln Leu Gln Ser Leu Glu
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 Glu Asp Asn Ser Leu Arg Asn Ile Ser Ser Asn Lys Leu Arg Ala Ser
 255 260 265

aat aaa gaa gaa caa agt agc aaa ctc aaa atc gaa gcc aca gtg ata 1226
 Asn Lys Glu Glu Gln Ser Ser Lys Leu Lys Ile Glu Ala Thr Val Ile
 270 275 280 285

gag agt cac gtc aac cta aaa att caa tgt acg agg aaa caa gga caa 1274
 Glu Ser His Val Asn Leu Lys Ile Gln Cys Thr Arg Lys Gln Gly Gln
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ctt ctc aga tca atc ata ttg ctg gag aaa ctt cga ttc act gtt ctt 1322
 Leu Leu Arg Ser Ile Ile Leu Leu Glu Lys Leu Arg Phe Thr Val Leu
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cat ctc aac atc aca tct ccg acc aat aca tct gtc tct tat tcc ttc 1370
 His Leu Asn Ile Thr Ser Pro Thr Asn Thr Ser Val Ser Tyr Ser Phe
 320 325 330

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 Asn Leu Lys Met Glu Asp Glu Cys Asn Leu Gly Ser Ala Asp Glu Ile
 335 340 345

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 Thr Ala Ala Ile Arg Gln Ile Phe Asp Ser
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Ser Glu Asp Pro Ser Pro Phe Leu Ser Phe Lys Asp Pro Ser Phe Leu
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Ala Leu Leu Ser Leu Gln Thr Leu Glu Lys Pro Trp Glu Leu Glu Asn
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Tyr Leu Pro His Glu Val Pro Glu Phe His Ser Pro Ile His Ser Glu
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Thr Asn His Tyr Tyr His Asn Pro Ser Leu Glu Gly Val Asn Glu Ala
115 120 125

Ile Ser Asn Gln Glu Leu Pro Phe Asn Pro Leu Glu Asn Ala Arg Ser
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Arg Arg Lys Arg Lys Asn Asn Asn Leu Ala Ser Leu Met Thr Arg Glu
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Lys Arg Lys Arg Arg Thr Lys Pro Thr Lys Asn Ile Glu Glu Ile
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Glu Ser Gln Arg Met Thr His Ile Ala Val Glu Arg Asn Arg Arg Arg
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Gln Met Asn Val His Leu Asn Ser Leu Arg Ser Ile Ile Pro Ser Ser
195 200 205

Tyr Ile Gln Arg Gly Asp Gln Ala Ser Ile Val Gly Gly Ala Ile Asp
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Phe Val Lys Ile Leu Glu Gln Gln Leu Gln Ser Leu Glu Ala Gln Lys

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Ser Leu Arg Asn Ile Ser Ser Asn Lys Leu Arg Ala Ser Asn Lys Glu
260 265 270

Glu Gln Ser Ser Lys Leu Lys Ile Glu Ala Thr Val Ile Glu Ser His
275 280 285

Val Asn Leu Lys Ile Gln Cys Thr Arg Lys Gln Gly Gln Leu Leu Arg
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Ile Thr Ser Pro Thr Asn Thr Ser Val Ser Tyr Ser Phe Asn Leu Lys
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Leu Leu Pro Gly Glu Lys Phe Ser Asp Glu Asp Met Ser Ala Ala Thr
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Ile Arg Lys Lys Ala Thr Glu Val Gly Ala Gln Val Asp Ala Leu Gly
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Thr Ala Val Gln Asn Asn Arg His Arg Val Phe Gly Gln Asn Arg Asp
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Ser Asp Val Asp Asn Lys Asn Phe His Arg Asn Tyr Gln Asn Gly Glu
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Gly Arg Leu Leu Asp Arg Val Asp Leu Asn Lys Leu Pro Asp Pro Glu
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Ser Tyr Ser Thr Pro Glu Ala Ala Ala Arg Ala Tyr Asp Thr Ala Val
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Phe Tyr Leu Arg Gly Pro Thr Ala Arg Leu Asn Phe Pro Glu Leu Leu
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Pro Gly Glu Lys Phe Ser Asp Glu Asp Met Ser Ala Ala Thr Ile Arg
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Lys Lys Ala Thr Glu Val Gly Ala Gln Val Asp Ala Leu Gly Thr Ala
100 105 110

Val Gln Asn Asn Arg His Arg Val Phe Gly Gln Asn Arg Asp Ser Asp
115 120 125

Val Asp Asn Lys Asn Phe His Arg Asn Tyr Gln Asn Gly Glu Arg Glu
130 135 140

Glu Glu Glu Glu Asp Glu Asp Asp Lys Arg Leu Arg Ser Gly Gly Arg
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Met Ala Thr Ala Lys Asn Lys Gly Lys Ser Ile Arg Val Leu
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Gly Thr Ser Glu Ala Glu Lys Lys Asp Glu Met Glu Leu Glu Glu Glu
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Phe Gln Phe Ser Ser Gly Lys Tyr Lys Asp Ser Gly Pro Gly Ser Asp
35 40 45

atg tgg tta gga gat gct tcc tct acg tct cca aga agt ctt agg aag 254
Met Trp Leu Gly Asp Ala Ser Ser Thr Ser Pro Arg Ser Leu Arg Lys
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act aga acc ttt gac cga cat aat ccc tat ctc gta tct tct tat gct 302

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Tyr	Leu	Pro	Pro	Ala	Ile	Gln	Asn	Gln	Gln	Arg	Phe	Leu	His	Pro	Asn	
	95				100					105					110	
gac	cct	tca	gga	caa	aga	cag	caa	caa	atg	atc	tcg	ttt	gat	cct	caa	446
Asp	Pro	Ser	Gly		Gln	Gln	Gln	Met	Ile	Ser	Phe	Asp		Pro	Gln	
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caa	cag	gtg	caa	cca	tat	gtt	gca	caa	cag	cag	caa	caa	caa	caa	cat	494
Gln	Gln	Val	Gln	Pro	Tyr	Val	Ala	Gln	Gln	Gln	Gln	Gln	Gln	Gln	His	
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cta	ttg	cag	tac	tgg	aga	gac	att	ctg	aag	ctg	agt	ccg	agc	gga	aga	542
Leu	Leu	Gln	Tyr	Trp	Arg	Asp	Ile	Leu	Lys	Leu	Ser	Pro	Ser	Gly	Arg	
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Met	Met	Met	Met	Asn	Met	Leu	Arg	Gln	Glu	Ser	Asp	Leu	Pro	Leu	Thr	
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Arg	Pro	Pro	Val	Gln	Pro	Phe	Ser	Ala	Thr	Lys	Leu	Tyr	Arg	Gly	Val	
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Arg	Gln	Arg	His	Trp	Gly	Lys	Trp	Val	Ala	Glu	Ile	Arg	Lys	Pro	Arg	
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Ala	Met	Ala	Tyr	Asp	Arg	Glu	Ala	Phe	Lys	Leu	Arg	Gly	Glu	Thr	Ala	
		225					230					235				
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Arg	Leu	Asn	Phe	Pro	Glu	Leu	Phe	Leu	Asn	Lys	Gln	Glu	Pro	Thr	Pro	
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Val	His	Gln	Lys	Gln	Cys	Glu	Thr	Gly	Thr	Thr	Ser	Glu	Asp	Ser	Ser	
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Arg	Arg	Gly	Glu	Asp	Asp	Ser	Ser	Thr	Ala	Leu	Ala	Val	Gly	Gly	Val	
			275						280					285		
agt	gag	gag	acg	ggg	tgg	gct	gag	gca	tgg	ttc	aat	gca	att	cca	gag	974
Ser	Glu	Glu	Thr	Gly	Trp	Ala	Glu	Ala	Trp	Phe	Asn	Ala	Ile	Pro	Glu	

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Glu Trp Gly Pro Gly Ser Pro Leu Trp Asp Asp Tyr His Phe Pro Ile
305          310          315

tct aac cat aag gac gat ctt gac gcc aca caa aac tct tct tct gat 1070
Ser Asn His Lys Asp Asp Leu Asp Ala Thr Gln Asn Ser Ser Ser Asp
320          325          330

aca att tag gacctttggt agaatataga tatgcttagt tgtatgactg 1119
Thr Ile
335

atctagcttg tgtttttttt ttgggtggag acagtttttg tcattcttoca cattttagat 1179

tctattttcg accatcattt ttttcttgat cggtgactat gaatctaatag gggccaatca 1239

ttttcacata taaaactta 1258

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Ser Glu Ala Glu Lys Lys Asp Glu Met Glu Leu Glu Glu Glu Phe Gln
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Phe Ser Ser Gly Lys Tyr Lys Asp Ser Gly Pro Gly Ser Asp Met Trp
35 40 45

Leu Gly Asp Ala Ser Ser Thr Ser Pro Arg Ser Leu Arg Lys Thr Arg
50 55 60

Thr Phe Asp Arg His Asn Pro Tyr Leu Val Ser Ser Tyr Ala Thr Pro
65 70 75 80

Gln Pro Pro Thr Thr Thr Thr Cys Ser Val Ser Phe Pro Phe Tyr Leu
85 90 95

Pro Pro Ala Ile Gln Asn Gln Gln Arg Phe Leu His Pro Asn Asp Pro
100 105 110

Ser Gly Gln Arg Gln Gln Gln Met Ile Ser Phe Asp Pro Gln Gln Gln
115 120 125

Val Gln Pro Tyr Val Ala Gln Gln Gln Gln Gln Gln His Leu Leu
130 135 140

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Gln Tyr Trp Arg Asp Ile Leu Lys Leu Ser Pro Ser Gly Arg Met Met
145 150 155 160

Met Met Asn Met Leu Arg Gln Glu Ser Asp Leu Pro Leu Thr Arg Pro
165 170 175

Pro Val Gln Pro Phe Ser Ala Thr Lys Leu Tyr Arg Gly Val Arg Gln
180 185 190

Arg His Trp Gly Lys Trp Val Ala Glu Ile Arg Lys Pro Arg Asn Arg
195 200 205

Thr Arg Leu Trp Leu Gly Thr Phe Asp Thr Ala Glu Glu Ala Ala Met
210 215 220

Ala Tyr Asp Arg Glu Ala Phe Lys Leu Arg Gly Glu Thr Ala Arg Leu
225 230 235 240

Asn Phe Pro Glu Leu Phe Leu Asn Lys Gln Glu Pro Thr Pro Val His
245 250 255

Gln Lys Gln Cys Glu Thr Gly Thr Thr Ser Glu Asp Ser Ser Arg Arg
260 265 270

Gly Glu Asp Asp Ser Ser Thr Ala Leu Ala Val Gly Gly Val Ser Glu
275 280 285

Glu Thr Gly Trp Ala Glu Ala Trp Phe Asn Ala Ile Pro Glu Glu Trp
290 295 300

Gly Pro Gly Ser Pro Leu Trp Asp Asp Tyr His Phe Pro Ile Ser Asn
305 310 315 320

His Lys Asp Asp Leu Asp Ala Thr Gln Asn Ser Ser Ser Asp Thr Ile
325 330 335

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cat gga cta aaa gcg gcc aag cag ctt cag ggt tgc tct tct cca tgc	96
His Gly Leu Lys Ala Ala Lys Gln Leu Gln Gly Ser Ser Pro Ser	
20 25 30	
ttg tca gct tct tct tca tat ttg acg acg gag ata aag gag aat ctc	144
Leu Ser Ala Ser Ser Ser Tyr Leu Thr Thr Glu Ile Lys Glu Asn Leu	
35 40 45	
tta cat aac ata gtt tct tcc ttc aaa aaa gct att ttg atg ctc aac	192
Leu His Asn Ile Val Ser Ser Phe Lys Lys Ala Ile Leu Met Leu Asn	
50 55 60	
gga tcc acc aca caa cac aat cca acg ata gag ctt gcg cct gat ccc	240
Gly Ser Thr Thr Gln His Asn Pro Thr Ile Glu Leu Ala Pro Asp Pro	
65 70 75 80	
cta gct cat ccc gga aag gtt cca gga tct cca gca tgc atc acc gga	288
Leu Ala His Pro Gly Lys Val Pro Gly Ser Pro Ala Ser Ile Thr Gly	
85 90 95	
aat ccg aga agc gaa gag ttt ttc aat gta aga tgc aaa gaa ttc aac	336
Asn Pro Arg Ser Glu Glu Phe Phe Asn Val Arg Ser Lys Glu Phe Asn	
100 105 110	
tta agt tct aaa aag agg aag atg ttg cca aag tgg aca gag caa gtg	384
Leu Ser Ser Lys Lys Arg Lys Met Leu Pro Lys Trp Thr Glu Gln Val	
115 120 125	
aga att agc cca gag aga ggc tta gaa gga cct cat gac gat atc ttc	432
Arg Ile Ser Pro Glu Arg Gly Leu Glu Gly Pro His Asp Asp Ile Phe	
130 135 140	
agc tgg aga aaa tat ggc cag aaa gac att ttg ggc gcc aaa ttc cca	480
Ser Trp Arg Lys Tyr Arg Gly Gln Lys Asp Ile Leu Gly Ala Lys Phe Pro	
145 150 155 160	
agg agt tat tac aga tgc aca ttt cgt aac aca cag tac tgt tgg gct	528
Arg Ser Tyr Tyr Arg Cys Thr Phe Arg Asn Thr Gln Tyr Cys Trp Ala	
165 170 175	
acg aaa caa gtc caa aga tgc gac ggt gat cca acg atc ttc gaa gta	576
Thr Lys Gln Val Gln Arg Ser Asp Gly Asp Pro Thr Ile Phe Glu Val	
180 185 190	
aca tac aga gga aca cac act tgt tca cag ggg atc cca ctt cca gag	624
Thr Tyr Arg Gly Thr His Thr Cys Ser Gln Gly Ile Pro Leu Pro Glu	
195 200 205	
aaa cga gaa acc aaa cca aaa cac aca gta gca gta aat tac cag aat	672
Lys Arg Glu Thr Lys Pro Lys His Thr Val Ala Val Asn Tyr Gln Asn	
210 215 220	
ctc agg gcc agt ctt acc gta cgt acc ggc gga ctt gga agc gaa gct	720
Leu Arg Ala Ser Leu Thr Val Arg Thr Gly Gly Leu Gly Ser Glu Ala	
225 230 235 240	

ttc tca ttc ccc gtc acg tcg ccg tta tac act tac gag tcc atc aac 768
 Phe Ser Phe Pro Val Thr Ser Pro Leu Tyr Thr Tyr Glu Ser Ile Asn
 245 250 255

ggt ggt gga acg ttt tac cac cac gtg gga agt tct ggt ccg tcg gat 816
 Gly Gly Gly Thr Phe Tyr His His Val Gly Ser Ser Gly Pro Ser Asp
 260 265 270

ttc act gga ttg atc tca aca aat act tcc aca gga agt tct cca atc 864
 Phe Thr Gly Leu Ile Ser Thr Asn Thr Ser Thr Gly Ser Ser Pro Ile
 275 280 285

ttc gac gtt aat ttt caa ttt gat cca acg gct gag att aac aca ggc 912
 Phe Asp Val Asn Phe Gln Phe Asp Pro Thr Ala Glu Ile Asn Thr Gly
 290 295 300

ttc ccc act ttt ttc cac aat tcg att taa 942
 Phe Pro Thr Phe Phe His Asn Ser Ile
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His Gly Leu Lys Ala Ala Lys Gln Leu Gln Gly Ser Ser Ser Pro Ser
 20 25 30

Leu Ser Ala Ser Ser Ser Tyr Leu Thr Thr Glu Ile Lys Glu Asn Leu
 35 40 45

Leu His Asn Ile Val Ser Ser Phe Lys Lys Ala Ile Leu Met Leu Asn
 50 55 60

Gly Ser Thr Thr Gln His Asn Pro Thr Ile Glu Leu Ala Pro Asp Pro
 65 70 75 80

Leu Ala His Pro Gly Lys Val Pro Gly Ser Pro Ala Ser Ile Thr Gly
 85 90 95

Asn Pro Arg Ser Glu Glu Phe Phe Asn Val Arg Ser Lys Glu Phe Asn
 100 105 110

Leu Ser Ser Lys Lys Arg Lys Met Leu Pro Lys Trp Thr Glu Gln Val
 115 120 125

Arg Ile Ser Pro Glu Arg Gly Leu Glu Gly Pro His Asp Asp Ile Phe
 130 135 140

Ser Trp Arg Lys Tyr Gly Gln Lys Asp Ile Leu Gly Ala Lys Phe Pro
145 150 155 160

Arg Ser Tyr Tyr Arg Cys Thr Phe Arg Asn Thr Gln Tyr Cys Trp Ala
165 170 175

Thr Lys Gln Val Gln Arg Ser Asp Gly Asp Pro Thr Ile Phe Glu Val
180 185 190

Thr Tyr Arg Gly Thr His Thr Cys Ser Gln Gly Ile Pro Leu Pro Glu
195 200 205

Lys Arg Glu Thr Lys Pro Lys His Thr Val Ala Val Asn Tyr Gln Asn
210 215 220

Leu Arg Ala Ser Leu Thr Val Arg Thr Gly Gly Leu Gly Ser Glu Ala
225 230 235 240

Phe Ser Phe Pro Val Thr Ser Pro Leu Tyr Thr Tyr Glu Ser Ile Asn
245 250 255

Gly Gly Gly Thr Phe Tyr His His Val Gly Ser Ser Gly Pro Ser Asp
260 265 270

Phe Thr Gly Leu Ile Ser Thr Asn Thr Ser Thr Gly Ser Ser Pro Ile
275 280 285

Phe Asp Val Asn Phe Gln Phe Asp Pro Thr Ala Glu Ile Asn Thr Gly
290 295 300

Phe Pro Thr Phe Phe His Asn Ser Ile
305 310

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1 5 10 15
cca gat aaa tat aat aac caa aca cca atc atg gag tct gag tac ttc 96
Pro Asp Lys Tyr Asn Asn Gln Thr Pro Ile Met Glu Ser Glu Tyr Phe
20 25 30

aac atg ccc tct tct cct act tct tgt tcc tcc ttc tac cac ctc aat 144
 Asn Met Pro Ser Ser Pro Thr Ser Cys Ser Ser Phe Tyr His Leu Asn
 35 40 45

ggt ctg atc aac aac aac aac tac tct tca tca tcc aat ggt cag gat 192
 Gly Leu Ile Asn Asn Asn Asn Tyr Ser Ser Ser Ser Asn Gly Gln Asp
 50 55 60

cta atg acg agc aac aac tca act tca gac gaa gat cac caa caa agt 240
 Leu Met Thr Ser Asn Asn Ser Thr Ser Asp Glu Asp His Gln Gln Ser
 65 70 75 80

atg gtc atc gat gag agg aaa caa agg aga atg atc tct aac agg gaa 288
 Met Val Ile Asp Glu Arg Lys Gln Arg Arg Met Ile Ser Asn Arg Glu
 85 90 95

tct gct cgt agg tca aga atg aga aag cag aga cat ctc gat gag ctt 336
 Ser Ala Arg Arg Ser Arg Met Arg Lys Gln Arg His Leu Asp Glu Leu
 100 105 110

tgg tct caa gtg ata aga ctt cgc act gat aac cac tgt ctt atg gat 384
 Trp Ser Gln Val Ile Arg Leu Arg Thr Asp Asn His Cys Leu Met Asp
 115 120 125

aag ctg aac cgc gta tct gaa agc cat gag ctt gct tta aag gag aac 432
 Lys Leu Asn Arg Val Ser Glu Ser His Glu Leu Ala Leu Lys Glu Asn
 130 135 140

gct aag ctt aaa gag gaa act tct gat ctc aga cag ctg atc tct gag 480
 Ala Lys Leu Lys Glu Glu Thr Ser Asp Leu Arg Gln Leu Ile Ser Glu
 145 150 155 160

ata aag tca cac aac gaa gac gac aac agt ttt tta aga gag ctc gaa 528
 Ile Lys Ser His Asn Glu Asp Asp Asn Ser Phe Leu Arg Glu Leu Glu
 165 170 175

gat tcg ata tca aac tct aga tcg gat tcg aac caa agc ggc aga gat 576
 Asp Ser Ile Ser Asn Ser Arg Ser Asp Ser Asn Gln Ser Gly Arg Asp
 180 185 190

ttt gag ttg tgt taa 591
 Phe Glu Leu Cys
 195

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Met Asn Thr Ile Pro Ala Glu Leu Thr Gly Tyr Phe His Tyr Leu Pro
 1 5 10 15

Pro Asp Lys Tyr Asn Asn Gln Thr Pro Ile Met Glu Ser Glu Tyr Phe
 20 25 30

Asn Met Pro Ser Ser Pro Thr Ser Cys Ser Ser Phe Tyr His Leu Asn

35

40

45

Gly Leu Ile Asn Asn Asn Asn Tyr Ser Ser Ser Ser Asn Gly Gln Asp
50 55 60

Leu Met Thr Ser Asn Asn Ser Thr Ser Asp Glu Asp His Gln Gln Ser
65 70 75 80

Met Val Ile Asp Glu Arg Lys Gln Arg Arg Met Ile Ser Asn Arg Glu
85 90 95

Ser Ala Arg Arg Ser Arg Met Arg Lys Gln Arg His Leu Asp Glu Leu
100 105 110

Trp Ser Gln Val Ile Arg Leu Arg Thr Asp Asn His Cys Leu Met Asp
115 120 125

Lys Leu Asn Arg Val Ser Glu Ser His Glu Leu Ala Leu Lys Glu Asn
130 135 140

Ala Lys Leu Lys Glu Glu Thr Ser Asp Leu Arg Gln Leu Ile Ser Glu
145 150 155 160

Ile Lys Ser His Asn Glu Asp Asp Asn Ser Phe Leu Arg Glu Leu Glu
165 170 175

Asp Ser Ile Ser Asn Ser Arg Ser Asp Ser Asn Gln Ser Gly Arg Asp
180 185 190

Phe Glu Leu Cys
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Met Ala Lys Met Gly Leu Lys Pro Asp Pro Ala Thr
1 5 10

act aac cag acc,cac aat aat gcc aag gag att cgt tac aga ggc gtt 97
Thr Asn Gln Thr His Asn Asn Ala Lys Glu Ile Arg Tyr Arg Gly Val
15 20 25

agg aag cgt cct tgg ggc cgt tat gcc gcc gag atc cga gat ccg ggc 145
Arg Lys Arg Pro Trp Gly Arg Tyr Ala Ala Glu Ile Arg Asp Pro Gly

30	35	40	
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gcg cgt gct tac gat acg gcg gcg cgt gat ttt cgt ggt gct aag gct Ala Arg Ala Tyr Asp Thr Ala Ala Arg Asp Phe Arg Gly Ala Lys Ala 65 70 75			241
aag acc aat ttc cca act ttt ctc gag ctg agt gac cag aag gtc cct Lys Thr Asn Phe Pro Thr Phe Leu Glu Leu Ser Asp Gln Lys Val Pro 80 85 90			289
acc ggt ttc gcg cgt agc cct agc cag agc agc acg ctc gac tgt gct Thr Gly Phe Ala Arg Ser Pro Ser Gln Ser Ser Thr Leu Asp Cys Ala 95 100 105			337
tct cct ccg acg tta gtt gtg cct tca gcg acg gct ggg aat gtt ccc Ser Pro Pro Thr Leu Val Val Pro Ser Ala Thr Ala Gly Asn Val Pro 110 115 120			385
ccg cag ctc gag ctt agt ctc ggc gga gga ggc ggc ggc tcg tgt tat Pro Gln Leu Glu Leu Ser Leu Gly Gly Gly Gly Gly Ser Cys Tyr 125 130 135 140			433
cag atc ccg atg tcg cgt cct gtc tac ttt ttg gac ctg atg ggg atc Gln Ile Pro Met Ser Arg Pro Val Tyr Phe Leu Asp Leu Met Gly Ile 145 150 155			481
ggt aac gta ggt cgt ggt cag cct cct cct gtg aca tcg gcg ttt aga Gly Asn Val Gly Arg Gly Gln Pro Pro Pro Val Thr Ser Ala Phe Arg 160 165 170			529
tcg ccg gtg gtg cat gtt gcg acg aag atg gct tgt ggt gcc caa agc Ser Pro Val Val His Val Ala Thr Lys Met Ala Cys Gly Ala Gln Ser 175 180 185			577
gac tct gat tcg toa tcg gtc gtt gat ttc gaa ggt ggg atg gag aag Asp Ser Asp Ser Ser Ser Val Val Asp Phe Glu Gly Gly Met Glu Lys 190 195 200			625
aga tct cag ctg tta gat cta gat ctt aat ttg cct cct cca tcg gaa Arg Ser Gln Leu Leu Asp Leu Asp Leu Asn Leu Pro Pro Pro Ser Glu 205 210 215 220			673
cag gcc tga gcttttaacg gtgtcgtttc aattcgaagc gcattcgttt Gln Ala			722
cttctctctt ttgagctgtg aaaattcgtt ttctcatagt ttttctcttc tctctctctc			782
agtcataaatt tattaccagt ttttagaaag aaaaaacaga ttaaatctga gagagaaaaa			842
tataatttta gctgacatgg atcgttatgt acatattatt acataaccgg agatctgaac			902
ttttgtgtgt tgcttttaat tttttgcgac ttggtttac cccatgttgt ttctctattt			962

tttttactac tttttttttt ttgtttcttc caaatittca atcaataatt tggtaatctt 1022

c 1023

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His Asn Asn Ala Lys Glu Ile Arg Tyr Arg Gly Val Arg Lys Arg Pro
20 25 30

Trp Gly Arg Tyr Ala Ala Glu Ile Arg Asp Pro Gly Lys Lys Thr Arg
35 40 45

Val Trp Leu Gly Thr Phe Asp Thr Ala Glu Glu Ala Ala Arg Ala Tyr
50 55 60

Asp Thr Ala Ala Arg Asp Phe Arg Gly Ala Lys Ala Lys Thr Asn Phe
65 70 75 80

Pro Thr Phe Leu Glu Leu Ser Asp Gln Lys Val Pro Thr Gly Phe Ala
85 90 95

Arg Ser Pro Ser Gln Ser Ser Thr Leu Asp Cys Ala Ser Pro Pro Thr
100 105 110

Leu Val Val Pro Ser Ala Thr Ala Gly Asn Val Pro Pro Gln Leu Glu
115 120 125

Leu Ser Leu Gly Gly Gly Gly Ser Cys Tyr Gln Ile Pro Met
130 135 140

Ser Arg Pro Val Tyr Phe Leu Asp Leu Met Gly Ile Gly Asn Val Gly
145 150 155 160

Arg Gly Gln Pro Pro Pro Val Thr Ser Ala Phe Arg Ser Pro Val Val
165 170 175

His Val Ala Thr Lys Met Ala Cys Gly Ala Gln Ser Asp Ser Asp Ser
180 185 190

Ser Ser Val Val Asp Phe Glu Gly Gly Met Glu Lys Arg Ser Gln Leu

195

200

205

Leu Asp Leu Asp Leu Asn Leu Pro Pro Pro Ser Glu Gln Ala
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 Met Asp Ser Ser Cys Ile Asp Glu Ile Ser Ser
 1 5 10

tcc act tca gaa tct ttc tcc gcc acc acc gcc aag aag ctg tct cct 161
 Ser Thr Ser Glu Ser Phe Ser Ala Thr Thr Ala Lys Lys Leu Ser Pro
 15 20 25

cct ccc gcg gcg gcg tta cgc ctg tac cgg atg gga agc ggc ggg agc 209
 Pro Pro Ala Ala Ala Leu Arg Leu Tyr Arg Met Gly Ser Gly Gly Ser
 30 35 40

agc gtc gtg ttg gat ccc gag aac ggc cta gag acg gag tca cga aag 257
 Ser Val Val Leu Asp Pro Glu Asn Gly Leu Glu Thr Glu Ser Arg Lys
 45 50 55

cta cca tct tca aaa tac aaa ggt gtt gtt cct cag cct aac gga aga 305
 Leu Pro Ser Ser Lys Tyr Lys Gly Val Val Pro Gln Pro Asn Gly Arg
 60 65 70 75

tgg gga gct cag atc tac gag aag cac caa cga gta tgg ctg ggg act 353
 Trp Gly Ala Gln Ile Tyr Glu Lys His Gln Arg Val Trp Leu Gly Thr
 80 85 90

ttc aac gag caa gaa gaa gct gct cgt tcc tac gac atc gca gct tgt 401
 Phe Asn Glu Gln Glu Glu Ala Ala Arg Ser Tyr Asp Ile Ala Ala Cys
 95 100 105

aga ttc cgt ggc cgc gac gcc gtc gtc aac ttc aag aac gtt ctg gaa 449
 Arg Phe Arg Gly Arg Asp Ala Val Val Asn Phe Lys Asn Val Leu Glu
 110 115 120

gac ggc gat tta gct ttt ctt gaa gct cac tca aag gcc gag atc gtc 497
 Asp Gly Asp Leu Ala Phe Leu Glu Ala His Ser Lys Ala Glu Ile Val
 125 130 135

gac atg ttg aga aaa cac act tac gcc gac gag ctt gaa cag aac aat 545
 Asp Met Leu Arg Lys His Thr Tyr Ala Asp Glu Leu Glu Gln Asn Asn
 140 145 150 155

aaa cgg cag ttg ttt ctg tcc gtc gac gct aac gga aaa cgt aac gga 593
 Lys Arg Gln Leu Phe Leu Ser Val Asp Ala Asn Gly Lys Arg Asn Gly
 160 165 170

tcg agt act act caa aac gac aaa gtt tta aag acg tgt gaa gtt ctt	641
Ser Ser Thr Thr Gln Asn Asp Lys Val Leu Lys Thr Cys Glu Val Leu	
175 180 185	
ttc gag aag gct gtt aca cct agc gac gtt ggg aag cta aac cgt ctc	689
Phe Glu Lys Ala Val Thr Pro Ser Asp Val Gly Lys Leu Asn Arg Leu	
190 195 200	
gtg ata cct aaa caa cac gcc gag aaa cac ttt ccg tta ccg tca ccg	737
Val Ile Pro Lys Gln His Ala Glu Lys His Phe Pro Leu Pro Ser Pro	
205 210 215	
tca ccg gca gtg act aaa gga gtt ttg atc aac ttc gaa gac gtt aac	785
Ser Pro Ala Val Thr Lys Gly Val Leu Ile Asn Phe Glu Asp Val Asn	
220 225 230 235	
ggg aaa gtg tgg agg ttc cgt tac tca tac tgg aac agt agt caa agt	833
Gly Lys Val Trp Arg Phe Arg Tyr Ser Tyr Trp Asn Ser Ser Gln Ser	
240 245 250	
tac gtg ttg acc aag gga tgg agt cga ttc gtc aag gag aag aat ctt	881
Tyr Val Leu Thr Lys Gly Trp Ser Arg Phe Val Lys Glu Lys Asn Leu	
255 260 265	
cga gcc ggt gat gtt gtt act ttc gag aga tgc acc gga cta gag cgg	929
Arg Ala Gly Asp Val Val Thr Phe Glu Arg Ser Thr Gly Leu Glu Arg	
270 275 280	
cag tta tat att gat tgg aaa gtt cgg tct ggt ccg aga gaa aac ccg	977
Gln Leu Tyr Ile Asp Trp Lys Val Arg Ser Gly Pro Arg Glu Asn Pro	
285 290 295	
gtt cag gtg gtg gtt cgg ctt ttc gga gtt gat atc ttt aat gtg acc	1025
Val Gln Val Val Val Arg Leu Phe Gly Val Asp Ile Phe Asn Val Thr	
300 305 310 315	
acc gtg aag cca aac gac gtc gtg gcc gtt tgc ggt gga aag aga tct	1073
Thr Val Lys Pro Asn Asp Val Val Ala Val Cys Gly Gly Lys Arg Ser	
320 325 330	
cga gat gtt gat gat atg ttt gcg tta cgg tgt tcc aag aag cag gcg	1121
Arg Asp Val Asp Met Phe Ala Leu Arg Cys Ser Lys Lys Gln Ala	
335 340 345	
ata atc aat gct ttg tga catatttct tttccgattt tatgctttcg	1169
Ile Ile Asn Ala Leu	
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Leu Arg Leu Tyr Arg Met Gly Ser Gly Gly Ser Ser Val Val Leu Asp
 35 40 45

Pro Glu Asn Gly Leu Glu Thr Glu Ser Arg Lys Leu Pro Ser Ser Lys
 50 55 60

Tyr Lys Gly Val Val Pro Gln Pro Asn Gly Arg Trp Gly Ala Gln Ile
 65 70 75 80

Tyr Glu Lys His Gln Arg Val Trp Leu Gly Thr Phe Asn Glu Gln Glu
 85 90 95

Glu Ala Ala Arg Ser Tyr Asp Ile Ala Ala Cys Arg Phe Arg Gly Arg
 100 105 110

Asp Ala Val Val Asn Phe Lys Asn Val Leu Glu Asp Gly Asp Leu Ala
 115 120 125

Phe Leu Glu Ala His Ser Lys Ala Glu Ile Val Asp Met Leu Arg Lys
 130 135 140

His Thr Tyr Ala Asp Glu Leu Glu Gln Asn Asn Lys Arg Gln Leu Phe
 145 150 155 160

Leu Ser Val Asp Ala Asn Gly Lys Arg Asn Gly Ser Ser Thr Thr Gln
 165 170 175

Asn Asp Lys Val Leu Lys Thr Cys Glu Val Leu Phe Glu Lys Ala Val
 180 185 190

Thr Pro Ser Asp Val Gly Lys Leu Asn Arg Leu Val Ile Pro Lys Gln
 195 200 205

His Ala Glu Lys His Phe Pro Leu Pro Ser Pro Ser Pro Ala Val Thr
 210 215 220

Lys Gly Val Leu Ile Asn Phe Glu Asp Val Asn Gly Lys Val Trp Arg
 225 230 235 240

Phe Arg Tyr Ser Tyr Trp Asn Ser Ser Gln Ser Tyr Val Leu Thr Lys
245 250 255

Gly Trp Ser Arg Phe Val Lys Glu Lys Asn Leu Arg Ala Gly Asp Val
260 265 270

Val Thr Phe Glu Arg Ser Thr Gly Leu Glu Arg Gln Leu Tyr Ile Asp
275 280 285

Trp Lys Val Arg Ser Gly Pro Arg Glu Asn Pro Val Gln Val Val Val
290 295 300

Arg Leu Phe Gly Val Asp Ile Phe Asn Val Thr Thr Val Lys Pro Asn
305 310 315 320

Asp Val Val Ala Val Cys Gly Gly Lys Arg Ser Arg Asp Val Asp Asp
325 330 335

Met Phe Ala Leu Arg Cys Ser Lys Lys Gln Ala Ile Ile Asn Ala Leu
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cgt agc agt ggt agt gga gga gga gga gcc gag caa ggg aag tac cgt 103
Arg Ser Ser Gly Ser Gly Gly Gly Gly Ala Glu Gln Gly Lys Tyr Arg
10 15 20

gga gta agg aga cga cct tgg ggt aaa tac gcc gcg gaa ata aga gat 151
Gly Val Arg Arg Arg Pro Trp Gly Lys Tyr Ala Ala Glu Ile Arg Asp
25 30 35

tcg agg aag cac gga gag cgt gtg tgg cta ggg aca ttc gac act gcg 199
Ser Arg Lys His Gly Glu Arg Val Trp Leu Gly Thr Phe Asp Thr Ala
40 45 50

gaa gac gcg gct cga gcc tat gac cga gcc gcc tat tca atg aga ggc 247
Glu Asp Ala Ala Arg Ala Tyr Asp Arg Ala Ala Tyr Ser Met Arg Gly
55 60 65

aaa gct gcc att ctc aac ttc cct cac gag tat aac atg gga acc gga 295
Lys Ala Ala Ile Leu Asn Phe Pro His Glu Tyr Asn Met Gly Thr Gly
70 75 80 85

tcc tca tcc act gcg gct aat tct tct tcc tgg tog cag caa gtt ttt 343
 Ser Ser Ser Thr Ala Ala Asn Ser Ser Ser Ser Gln Gln Val Phe
 90 95 100

gag ttt gag tac ttg gac gat agc gtt ttg gat gaa ctt ctt gaa tat 391
 Glu Phe Glu Tyr Leu Asp Asp Ser Val Leu Asp Glu Leu Leu Glu Tyr
 105 110 115

gga gag aac tat aac aag act cat aat atc aac atg ggc aag agg caa 439
 Gly Glu Asn Tyr Asn Lys Thr His Asn Ile Asn Met Gly Lys Arg Gln
 120 125 130

taa agggaataca atcggtatta actgaaagtt atgtgaaaga ccattttcag 492

ttataacaaa taaaataaaa tcccaagcgt acaaagctgt ttctaaaaaa aaaaaaaaaa 552

a 553

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Gln Gly Lys Tyr Arg Gly Val Arg Arg Arg Pro Trp Gly Lys Tyr Ala
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Ala Glu Ile Arg Asp Ser Arg Lys His Gly Glu Arg Val Trp Leu Gly
 35 40 45

Thr Phe Asp Thr Ala Glu Asp Ala Ala Arg Ala Tyr Asp Arg Ala Ala
 50 55 60

Tyr Ser Met Arg Gly Lys Ala Ala Ile Leu Asn Phe Pro His Glu Tyr
 65 70 75 80

Asn Met Gly Thr Gly Ser Ser Ser Thr Ala Ala Asn Ser Ser Ser Ser
 85 90 95

Ser Gln Gln Val Phe Glu Phe Glu Tyr Leu Asp Asp Ser Val Leu Asp
 100 105 110

Glu Leu Leu Glu Tyr Gly Glu Asn Tyr Asn Lys Thr His Asn Ile Asn
 115 120 125

Met Gly Lys Arg Gln
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 Asn His Asn Tyr Asp Gly Glu Gly Asp Gly Asp Val Ser Leu Trp Ser
 200 205 210

tac taa tattcgatag tcgtttccat ttttgtacta tagtttgaaa atattctagt 855
 Tyr

tccttttttt agaatgggtc cttcatttta ttttatttta ttgttgtaga aacgagtgga 915
 aaataattca atac 929

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Met Asn Ser Phe Ser Ala Phe Ser Glu Met Phe Gly Ser Asp Tyr Glu
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Pro Gln Gly Gly Asp Tyr Cys Pro Thr Leu Ala Thr Ser Cys Pro Lys
 20 25 30

Lys Pro Ala Gly Arg Lys Lys Phe Arg Glu Thr Arg His Pro Ile Tyr
 35 40 45

Arg Gly Val Arg Gln Arg Asn Ser Gly Lys Trp Val Ser Glu Val Arg
 50 55 60

Glu Pro Asn Lys Lys Thr Arg Ile Trp Leu Gly Thr Phe Gln Thr Ala
 65 70 75 80

Glu Met Ala Ala Arg Ala His Asp Val Ala Ala Leu Ala Leu Arg Gly
 85 90 95

Arg Ser Ala Cys Leu Asn Phe Ala Asp Ser Ala Trp Arg Leu Arg Ile
 100 105 110

Pro Glu Ser Thr Cys Ala Lys Asp Ile Gln Lys Ala Ala Ala Glu Ala
 115 120 125

Ala Leu Ala Phe Gln Asp Glu Thr Cys Asp Thr Thr Thr Thr Asn His
 130 135 140

Gly Leu Asp Met Glu Glu Thr Met Val Glu Ala Ile Tyr Thr Pro Glu
 145 150 155 160

Gln Ser Glu Gly Ala Phe Tyr Met Asp Glu Glu Thr Met Phe Gly Met
165 170 175

Pro Thr Leu Leu Asp Asn Met Ala Glu Gly Met Leu Leu Pro Pro Pro
180 185 190

Ser Val Gln Trp Asn His Asn Tyr Asp Gly Glu Gly Asp Gly Asp Val
195 200 205

Ser Leu Trp Ser Tyr
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tct ccg gtt tcc tca ggc ggt gat tac agt ccg aag ctt gcc acg agc 103
Ser Pro Val Ser Ser Gly Gly Asp Tyr Ser Pro Lys Leu Ala Thr Ser
10 15 20

tgc ccc aag aaa cca gcg gga agg aag aag ttt cgt gag act cgt cac 151
Cys Pro Lys Lys Pro Ala Gly Arg Lys Lys Phe Arg Glu Thr Arg His
25 30 35

cca att tac aga gga gtt cgt caa aga aac tcc ggt aag tgg gtg tgt 199
Pro Ile Tyr Arg Gly Val Arg Gln Arg Asn Ser Gly Lys Trp Val Cys
40 45 50 55

gag ttg aga gag cca aac aag aaa acg agg att tgg ctc ggg act ttc 247
Glu Leu Arg Glu Pro Asn Lys Lys Thr Arg Ile Trp Leu Gly Thr Phe
60 65 70

caa acc gct gag atg gca gct cgt gct cac gac gtc gcc gcc ata gct 295
Gln Thr Ala Glu Met Ala Ala Arg Ala His Asp Val Ala Ala Ile Ala
75 80 85

ctc cgt ggc aga tct gcc tgt ctc aat ttc gct gac tcg gct tgg cgg 343
Leu Arg Gly Arg Ser Ala Cys Leu Asn Phe Ala Asp Ser Ala Trp Arg
90 95 100

cta cga atc ccg gaa tca acc tgt gcc aag gaa atc caa aag gcg gcg 391
Leu Arg Ile Pro Glu Ser Thr Cys Ala Lys Glu Ile Gln Lys Ala Ala
105 110 115

gct gaa gcc gcg ttg aat ttt caa gat gag atg tgt cat atg acg acg 439
Ala Glu Ala Ala Leu Asn Phe Gln Asp Glu Met Cys His Met Thr Thr
120 125 130 135

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gat gct cat ggt ctt gac atg gag gag acc ttg gtg gag gct att tat	487
Asp Ala His Gly Leu Asp Met Glu Glu Thr Leu Val Glu Ala Ile Tyr	
140 145 150	
acg ccg gaa cag agc caa gat gcg ttt tat atg gat gaa gag gcg atg	535
Thr Pro Glu Gln Ser Gln Asp Ala Phe Tyr Met Asp Glu Glu Ala Met	
155 160 165	
ttg ggg atg tct agt ttg ttg gat aac atg gcc gaa ggg atg ctt tta	583
Leu Gly Met Ser Ser Leu Leu Asp Asn Met Ala Glu Gly Met Leu Leu	
170 175 180	
ccg tcg ccg tcg gtt caa tgg aac tat aat ttt gat gtc gag gga gat	631
Pro Ser Pro Ser Val Gln Trp Asn Tyr Asn Phe Asp Val Glu Gly Asp	
185 190 195	
gat gac gtg tcc tta tgg agc tat taa aattcgattt ttatttccat	678
Asp Asp Val Ser Leu Trp Ser Tyr	
200 205	
ttttggtatt atagcttttt atacatttga tcctttttta gaatggatct tcttcttttt	738
ttggttggtga gaaacgaatg taaatggtaa aagttgttgt caaatgcaaa tgtttttgag	798
tgcag	803
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20 25 30	
Lys Phe Arg Glu Thr Arg His Pro Ile Tyr Arg Gly Val Arg Gln Arg	
35 40 45	
Asn Ser Gly Lys Trp Val Cys Glu Leu Arg Glu Pro Asn Lys Lys Thr	
50 55 60	
Arg Ile Trp Leu Gly Thr Phe Gln Thr Ala Glu Met Ala Ala Arg Ala	
65 70 75 80	
His Asp Val Ala Ala Ile Ala Leu Arg Gly Arg Ser Ala Cys Leu Asn	
85 90 95	
Phe Ala Asp Ser Ala Trp Arg Leu Arg Ile Pro Glu Ser Thr Cys Ala	
100 105 110	

Lys Glu Ile Gln Lys Ala Ala Ala Glu Ala Ala Leu Asn Phe Gln Asp
115 120 125

Glu Met Cys His Met Thr Thr Asp Ala His Gly Leu Asp Met Glu Glu
130 135 140

Thr Leu Val Glu Ala Ile Tyr Thr Pro Glu Gln Ser Gln Asp Ala Phe
145 150 155 160

Tyr Met Asp Glu Glu Ala Met Leu Gly Met Ser Ser Leu Leu Asp Asn
165 170 175

Met Ala Glu Gly Met Leu Leu Pro Ser Pro Ser Val Gln Trp Asn Tyr
180 185 190

Asn Phe Asp Val Glu Gly Asp Asp Asp Val Ser Leu Trp Ser Tyr
195 200 205

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<222> (119)..(769) <223> G42

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atg aac tca ttt tct gct ttt tct gaa atg ttt ggc tcc gat tac gag 166
Met Asn Ser Phe Ser Ala Phe Ser Glu Met Phe Gly Ser Asp Tyr Glu
1 5 10 15

tct tcg gtt tcc tca ggc ggt gat tat att ccg acg ctt gcg agc agc 214
Ser Ser Val Ser Ser Gly Gly Asp Tyr Ile Pro Thr Leu Ala Ser Ser
20 25 30

tgc ccc aag aaa ccg gcg ggt cgt aag aag ttt cgt gag act cgt cac 262
Cys Pro Lys Lys Pro Ala Gly Arg Lys Lys Phe Arg Glu Thr Arg His
35 40 45

cca ata tac aga gga gtt cgt cgg aga aac tcc ggt aag tgg gtt tgt 310
Pro Ile Tyr Arg Gly Val Arg Arg Asn Ser Gly Lys Trp Val Cys
50 55 60

gag gtt aga gaa cca aac aag aaa aca agg att tgg ctc gga aca ttt 358
Glu Val Arg Glu Pro Asn Lys Lys Thr Arg Ile Trp Leu Gly Thr Phe
65 70 75 80

caa acc gct gag atg gca gct cga gct cac gac gtt gcc gct tta gcc 406
Gln Thr Ala Glu Met Ala Ala Arg Ala His Asp Val Ala Ala Leu Ala
85 90 95

ctt cgt ggc cga tca gcc tgt ctc aat ttc gct gac tcg gct tgg aga 454

Leu Arg Gly Arg Ser Ala Cys Leu Asn Phe Ala Asp Ser Ala Trp Arg
 100 105 110

ctc cga atc ccg gaa tca act tgc gct aag gac atc caa aag gcg gcg 502
 Leu Arg Ile Pro Glu Ser Thr Cys Ala Lys Asp Ile Gln Lys Ala Ala
 115 120 125

gct gaa gct gcg ttg gcg ttt cag gat gag atg tgt gat gcg acg acg 550
 Ala Glu Ala Ala Leu Ala Phe Gln Asp Glu Met Cys Asp Ala Thr Thr
 130 135 140

gat cat ggc ttc gac atg gag gag acg ttg gtg gag gct att tac acg 598
 Asp His Gly Phe Asp Met Glu Glu Thr Leu Val Glu Ala Ile Tyr Thr
 145 150 155 160

gcg gaa cag agc gaa aat gcg ttt tat atg cac gat gag gcg atg ttt 646
 Ala Glu Gln Ser Glu Asn Ala Phe Tyr Met His Asp Glu Ala Met Phe
 165 170 175

gag atg ccg agt ttg ttg gct aat atg gca gaa ggg atg ctt ttg ccg 694
 Glu Met Pro Ser Leu Leu Ala Asn Met Ala Glu Gly Met Leu Leu Pro
 180 185 190

ctt ccg tcc gta cag tgg aat cat aat cat gaa gtc gac gcc gat gat 742
 Leu Pro Ser Val Gln Trp Asn His Asn His Glu Val Asp Gly Asp Asp
 195 200 205

gac gac gta tcg tta tgg agt tat taa aactcagatt attatttcca 789
 Asp Asp Val Ser Leu Trp Ser Tyr
 210 215

tttttagtagc gatacttttt tttttattat ttttttaga tcctttttta gaatggaatc 849

tacattatgt ttgtaaaaac gagaaacgag tgtaaaattaa attgattcag tttcagtat 908

<210> 354 <211> 216 <212> PRT <213> Arabidopsis thaliana <400> 354

Met Asn Ser Phe Ser Ala Phe Ser Glu Met Phe Gly Ser Asp Tyr Glu
 1 5 10 15

Ser Ser Val Ser Ser Gly Gly Asp Tyr Ile Pro Thr Leu Ala Ser Ser
 20 25 30

Cys Pro Lys Lys Pro Ala Gly Arg Lys Lys Phe Arg Glu Thr Arg His
 35 40 45

Pro Ile Tyr Arg Gly Val Arg Arg Arg Asn Ser Gly Lys Trp Val Cys
 50 55 60

Glu Val Arg Glu Pro Asn Lys Lys Thr Arg Ile Trp Leu Gly Thr Phe
 65 70 75 80

Gln Thr Ala Glu Met Ala Ala Arg Ala His Asp Val Ala Ala Leu Ala
85 90 95

Leu Arg Gly Arg Ser Ala Cys Leu Asn Phe Ala Asp Ser Ala Trp Arg
100 105 110

Leu Arg Ile Pro Glu Ser Thr Cys Ala Lys Asp Ile Gln Lys Ala Ala
115 120 125

Ala Glu Ala Ala Leu Ala Phe Gln Asp Glu Met Cys Asp Ala Thr Thr
130 135 140

Asp His Gly Phe Asp Met Glu Glu Thr Leu Val Glu Ala Ile Tyr Thr
145 150 155 160

Ala Glu Gln Ser Glu Asn Ala Phe Tyr Met His Asp Glu Ala Met Phe
165 170 175

Glu Met Pro Ser Leu Leu Ala Asn Met Ala Glu Gly Met Leu Leu Pro
180 185 190

Leu Pro Ser Val Gln Trp Asn His Asn His Glu Val Asp Gly Asp Asp
195 200 205

Asp Asp Val Ser Leu Trp Ser Tyr
210 215

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ggg aag att gtg atc cag aag atc gat gat tcc acg agt aga caa gtc 106
Gly Lys Ile Val Ile Gln Lys Ile Asp Asp Ser Thr Ser Arg Gln Val
5 10 15

act ttc tcc aaa aga aga aag ggt ctc atc aag aaa gct aaa gaa ctt 154
Thr Phe Ser Lys Arg Arg Lys Gly Leu Ile Lys Lys Ala Lys Glu Leu
20 25 30 35

gct att ctc tgc gac gcc gag gtc tgt ctc atc att ttc tcc aac act 202
Ala Ile Leu Cys Asp Ala Glu Val Cys Leu Ile Ile Phe Ser Asn Thr
40 45 50

gac aag ctc tat gac ttt gcc agc tcc agt gtg aaa tct act att gaa 250
 Asp Lys Leu Tyr Asp Phe Ala Ser Ser Ser Val Lys Ser Thr Ile Glu
 55 60 65
 cga ttc aat acg gct aag atg gag gag caa gaa cta atg aac cct gca 298
 Arg Phe Asn Thr Ala Lys Met Glu Glu Gln Glu Leu Met Asn Pro Ala
 70 75 80
 tca gaa gtt aag ttt tgg cag aga gag gct gaa act cta agg caa gaa 346
 Ser Glu Val Lys Phe Trp Gln Arg Glu Ala Glu Thr Leu Arg Gln Glu
 85 90 95
 ttg cac toa ttg caa gaa aat tat cgg caa cta acg gga gtg gaa tta 394
 Leu His Ser Leu Gln Glu Asn Tyr Arg Gln Thr Gly Val Glu Leu
 100 105 110 115
 aat ggt ttg agc gtt aag gag tta caa aac ata gag agt caa ctt gaa 442
 Asn Gly Leu Ser Val Lys Glu Leu Gln Asn Ile Glu Ser Gln Leu Glu
 120 125 130
 atg agt tta cgt gga att cgt atg aaa agg gaa caa att ttg acc aat 490
 Met Ser Leu Arg Gly Ile Arg Met Lys Arg Glu Gln Ile Leu Thr Asn
 135 140 145
 gaa att aaa gag cta acc aga aag agg aat ctt gtt cat cat gaa aac 538
 Glu Ile Lys Glu Leu Thr Arg Lys Arg Asn Leu Val His His Glu Asn
 150 155 160
 ctc gaa ttg tcg aga aaa gta caa agg att cat caa gaa aat gtc gaa 586
 Leu Glu Leu Ser Arg Lys Val Gln Arg Ile His Gln Glu Asn Val Glu
 165 170 175
 cta tac aag aag gct tat gga acg tcg aac aca aat gga ttg gga cat 634
 Leu Tyr Lys Lys Ala Tyr Gly Thr Ser Asn Thr Asn Gly Leu Gly His
 180 185 190 195
 cat gag cta gta gat gca gtt tat gaa tcc cat gca cag gtt agg ctg 682
 His Glu Leu Val Asp Ala Val Tyr Glu Ser His Ala Gln Val Arg Leu
 200 205 210
 cag cta agc cag cct gag cag tcc cat tat aag aca tct tca aac agc 730
 Gln Leu Ser Gln Pro Glu Gln Ser His Tyr Lys Thr Ser Ser Asn Ser
 215 220 225
 taa gatcatataa gagatatata acaaattggt cgttcttgat tatotcaaaa 783
 cccctttcaaa tatatatacgt tgoatattat atatgaagac togtttgact atgtcaatat 843
 atatgttttc atgcaggagt aagtgtgagt gtaatoatgt cggagagcaa accaaagggt 903
 tgatttgtac gatatatact tatatatggt ctcaagtcaa agcaatgcaa cagott 959
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Arg Gln Val Thr Phe Ser Lys Arg Arg Lys Gly Leu Ile Lys Lys Ala
20 25 30

Lys Glu Leu Ala Ile Leu Cys Asp Ala Glu Val Cys Leu Ile Ile Phe
35 40 45

Ser Asn Thr Asp Lys Leu Tyr Asp Phe Ala Ser Ser Ser Val Lys Ser
50 55 60

Thr Ile Glu Arg Phe Asn Thr Ala Lys Met Glu Glu Gln Glu Leu Met
65 70 75 80

Asn Pro Ala Ser Glu Val Lys Phe Trp Gln Arg Glu Ala Glu Thr Leu
85 90 95

Arg Gln Glu Leu His Ser Leu Gln Glu Asn Tyr Arg Gln Leu Thr Gly
100 105 110

Val Glu Leu Asn Gly Leu Ser Val Lys Glu Leu Gln Asn Ile Glu Ser
115 120 125

Gln Leu Glu Met Ser Leu Arg Gly Ile Arg Met Lys Arg Glu Gln Ile
130 135 140

Leu Thr Asn Glu Ile Lys Glu Leu Thr Arg Lys Arg Asn Leu Val His
145 150 155 160

His Glu Asn Leu Glu Leu Ser Arg Lys Val Gln Arg Ile His Gln Glu
165 170 175

Asn Val Glu Leu Tyr Lys Lys Ala Tyr Gly Thr Ser Asn Thr Asn Gly
180 185 190

Leu Gly His His Glu Leu Val Asp Ala Val Tyr Glu Ser His Ala Gln
195 200 205

Val Arg Leu Gln Leu Ser Gln Pro Glu Gln Ser His Tyr Lys Thr Ser
210 215 220

Ser Asn Ser
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 Met Gly Arg Gly Lys Ile
 1 5
 gtt ata cga agg atc gat aac tct aca agt aga caa gtg act ttc tcc 162
 Val Ile Arg Arg Ile Asp Asn Ser Thr Ser Arg Gln Val Thr Phe Ser
 10 15 20
 aag aga agg agt ggt ttg ctt aag aag gct aaa gag tta tgc atc ctt 210
 Lys Arg Arg Ser Gly Leu Leu Lys Lys Ala Lys Glu Leu Ser Ile Leu
 25 30 35
 tgt gat gca gaa gtt ggt gtt atc ata ttc tct agc acc gga aag ctc 258
 Cys Asp Ala Glu Val Gly Val Ile Ile Phe Ser Ser Thr Gly Lys Leu
 40 45 50
 tac gac tac gca agc aat tca agt atg aaa aca atc att gag cgg tac 306
 Tyr Asp Tyr Ala Ser Asn Ser Ser Met Lys Thr Ile Ile Glu Arg Tyr
 55 60 65 70
 aac aga gta aaa gag gag cag cat caa ctt ctg aat cat gcc tca gag 354
 Asn Arg Val Lys Glu Glu Gln His Gln Leu Asn His Ala Ser Ser Glu
 75 80 85
 ata aag ttt tgg caa aga gag gtt gca agt ttg cag cag cag ctc caa 402
 Ile Lys Phe Trp Gln Arg Glu Val Ala Ser Leu Gln Gln Leu Gln
 90 95 100
 cat cta caa gaa tgc cac agg aaa cta gtg gga gag gaa ctt tct gga 450
 His Leu Gln Glu Cys His Arg Lys Leu Val Gly Glu Glu Leu Ser Gly
 105 110 115
 atg aat gct aac gac cta caa aat ctt gaa gac cag cta gta aca agt 498
 Met Asn Ala Asn Asp Leu Gln Asn Leu Glu Asp Gln Leu Val Thr Ser
 120 125 130
 cta aaa ggt gtt cgt ctc aaa aag gat caa ctt atg aca aat gaa atc 546
 Leu Lys Gly Val Arg Leu Lys Lys Asp Gln Leu Met Thr Asn Glu Ile
 135 140 145 150
 aga gaa ctt aat cgt aag gga caa atc atc caa aaa gag aat cac gag 594
 Arg Glu Leu Asn Arg Lys Gly Gln Ile Ile Gln Lys Glu Asn His Glu
 155 160 165
 cta caa aat att gta gat ata atg cgt aag gaa aat att aaa ttg caa 642
 Leu Gln Asn Ile Val Asp Ile Met Arg Lys Lys Glu Asn Ile Lys Leu Gln
 170 175 180
 aag aag gtt cat gga aga aca aat gtg att gaa ggc aat tca agt gta 690
 Lys Lys Val His Gly Arg Thr Asn Val Ile Glu Gly Asn Ser Ser Val

185	190	195	
gat cca ata agc aat gga acc aca aca tat gca cca ccg caa ctt caa			738
Asp Pro Ile Ser Asn Gly Thr Thr Thr Tyr Ala Pro Pro Gln Leu Gln			
200	205	210	
ctc ata caa cta caa cca gct cct aga gaa aaa tca atc aga cta ggg			786
Leu Ile Gln Leu Gln Pro Ala Pro Arg Glu Lys Ser Ile Arg Leu Gly			
215	220	225	230
cta caa ctt tcc tag caaaacatgt gggacatcga acaatatacg aaaagagttt			841
Leu Gln Leu Ser			
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ttactacttt ggagtttaat atgttatatg acaagtttct ctttgtcaag ttacttgtgt			961
atgtacatca taaataatgt atgtgatgtg agtgccgaac atactagaca tcattttacc			1021
gtgtgttttt ttcgggtaca ttaaatgtac aaaatccagt ctaattggca tttttataca			1081
aaaaaaaaa aaaaaaa			1098
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Arg Gln Val Thr Phe Ser Lys Arg Arg Ser Gly Leu Leu Lys Lys Ala			
20 25 30			
Lys Glu Leu Ser Ile Leu Cys Asp Ala Glu Val Gly Val Ile Ile Phe			
35 40 45			
Ser Ser Thr Gly Lys Leu Tyr Asp Tyr Ala Ser Asn Ser Ser Met Lys			
50 55 60			
Thr Ile Ile Glu Arg Tyr Asn Arg Val Lys Glu Glu Gln His Gln Leu			
65 70 75 80			
Leu Asn His Ala Ser Glu Ile Lys Phe Trp Gln Arg Glu Val Ala Ser			
85 90 95			
Leu Gln Gln Gln Leu Gln His Leu Gln Glu Cys His Arg Lys Leu Val			
100 105 110			
Gly Glu Glu Leu Ser Gly Met Asn Ala Asn Asp Leu Gln Asn Leu Glu			
115 120 125			

Asp Gln Leu Val Thr Ser Leu Lys Gly Val Arg Leu Lys Lys Asp Gln
130 135 140

Leu Met Thr Asn Glu Ile Arg Glu Leu Asn Arg Lys Gly Gln Ile Ile
145 150 155 160

Gln Lys Glu Asn His Glu Leu Gln Asn Ile Val Asp Ile Met Arg Lys
165 170 175

Glu Asn Ile Lys Leu Gln Lys Lys Val His Gly Arg Thr Asn Val Ile
180 185 190

Glu Gly Asn Ser Ser Val Asp Pro Ile Ser Asn Gly Thr Thr Thr Tyr
195 200 205

Ala Pro Pro Gln Leu Gln Leu Ile Gln Leu Gln Pro Ala Pro Arg Glu
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Lys Ser Ile Arg Leu Gly Leu Gln Leu Ser
225 230

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<222> (100)..(1761) <223> G186

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Met Asp Arg Gly Trp
1 5

tct ggt ctc act ctt gat tca tct tct ctt gat ctt tta aac cct aat 162
Ser Gly Leu Thr Leu Asp Ser Ser Ser Leu Asp Leu Leu Asn Pro Asn
10 15 20

cgt att tct cat aag aat cac cga cgt ttc tca aat cct ttg gcg atg 210
Arg Ile Ser His Lys Asn His Arg Arg Phe Ser Asn Pro Leu Ala Met
25 30 35

tct aga att gac gaa gaa gat gat cag aag acg aga ata tca acc aac 258
Ser Arg Ile Asp Glu Glu Asp Asp Gln Lys Thr Arg Ile Ser Thr Asn
40 45 50

ggt agt gaa ttt agg ttt ccg gtg agt ctc tca ggt att cgt gat cgt 306
Gly Ser Glu Phe Arg Phe Pro Val Ser Leu Ser Gly Ile Arg Asp Arg
55 60 65

gaa gat gaa gat ttt tca tct ggc gtt gct gga gat aat gac cgt gaa 354

att tct tct atg atc aat ggt acg aac cac cac gac ggc gaa gga aac 1746
Ile Ser Ser Met Ile Asn Gly Thr Asn His His Asp Gly Glu Gly Asn
535 540 545

aac aaa aat caa tag aaaaatatta ctttttttt ttgggtatct acattttttt 1801
Asn Lys Asn Gln
550

tccaactggg ttataggaaa cagagagttt atttcattga ttcacatttg tctggtttcg 1861

tacccaaatc ccagtaataa taaaaagca aactatactc aagttcatat tcgtaaacac 1921

tataaatagt acgttactta ataaaaaaaa a 1952

<210> 360 <211> 553 <212> PRT <213> Arabidopsis thaliana <400> 360

Met Asp Arg Gly Trp Ser Gly Leu Thr Leu Asp Ser Ser Ser Leu Asp
1 5 10 15

Leu Leu Asn Pro Asn Arg Ile Ser His Lys Asn His Arg Arg Phe Ser
20 25 30

Asn Pro Leu Ala Met Ser Arg Ile Asp Glu Glu Asp Asp Gln Lys Thr
35 40 45

Arg Ile Ser Thr Asn Gly Ser Glu Phe Arg Phe Pro Val Ser Leu Ser
50 55 60

Gly Ile Arg Asp Arg Glu Asp Glu Asp Phe Ser Ser Gly Val Ala Gly
65 70 75 80

Asp Asn Asp Arg Glu Val Pro Gly Glu Val Asp Phe Phe Ser Asp Lys
85 90 95

Lys Ser Arg Val Cys Arg Glu Asp Asp Glu Gly Phe Arg Val Lys Lys
100 105 110

Glu Glu Gln Asp Asp Arg Thr Asp Val Asn Thr Gly Leu Asn Leu Arg
115 120 125

Thr Thr Gly Asn Thr Lys Ser Asp Glu Ser Met Ile Asp Asp Gly Glu
130 135 140

Ser Ser Glu Met Glu Asp Lys Arg Ala Lys Asn Glu Leu Val Lys Leu
145 150 155 160

Gln Asp Glu Leu Lys Lys Met Thr Met Asp Asn Gln Lys Leu Arg Glu
 165 170 175

Leu Leu Thr Gln Val Ser Asn Ser Tyr Thr Ser Leu Gln Met His Leu
 180 185 190

Val Ser Leu Met Gln Gln Gln Gln Gln Gln Asn Asn Lys Val Ile Glu
 195 200 205

Ala Ala Glu Lys Pro Glu Glu Thr Ile Val Pro Arg Gln Phe Ile Asp
 210 215 220

Leu Gly Pro Thr Arg Ala Val Gly Glu Ala Glu Asp Val Ser Asn Ser
 225 230 235 240

Ser Ser Glu Asp Arg Thr Arg Ser Gly Gly Ser Ser Ala Ala Glu Arg
 245 250 255

Arg Ser Asn Gly Lys Arg Leu Gly Arg Glu Glu Ser Pro Glu Thr Glu
 260 265 270

Ser Asn Lys Ile Gln Lys Val Asn Ser Thr Thr Pro Thr Thr Phe Asp
 275 280 285

Gln Thr Ala Glu Ala Thr Met Arg Lys Ala Arg Val Ser Val Arg Ala
 290 295 300

Arg Ser Glu Ala Pro Met Ile Ser Asp Gly Cys Gln Trp Arg Lys Tyr
 305 310 315 320

Gly Gln Lys Met Ala Lys Gly Asn Pro Cys Pro Arg Ala Tyr Tyr Arg
 325 330 335

Cys Thr Met Ala Thr Gly Cys Pro Val Arg Lys Gln Val Gln Arg Cys
 340 345 350

Ala Glu Asp Arg Ser Ile Leu Ile Thr Thr Tyr Glu Gly Asn His Asn
 355 360 365

His Pro Leu Pro Pro Ala Ala Val Ala Met Ala Ser Thr Thr Thr Ala
 370 375 380

Ala Ala Asn Met Leu Leu Ser Gly Ser Met Ser Ser His Asp Gly Met
385 390 395 400

Met Asn Pro Thr Asn Leu Leu Ala Arg Ala Val Leu Pro Cys Ser Thr
405 410 415

Ser Met Ala Thr Ile Ser Ala Ser Ala Pro Phe Pro Thr Val Thr Leu
420 425 430

Asp Leu Thr His Ser Pro Pro Pro Pro Asn Gly Ser Asn Pro Ser Ser
435 440 445

Ser Ala Ala Thr Asn Asn Asn His Asn Ser Leu Met Gln Arg Pro Gln
450 455 460

Gln Gln Gln Gln Gln Met Thr Asn Leu Pro Pro Gly Met Leu Pro His
465 470 475 480

Val Ile Gly Gln Ala Leu Tyr Asn Gln Ser Lys Phe Ser Gly Leu Gln
485 490 495

Phe Ser Gly Gly Ser Pro Ser Thr Ala Ala Phe Ser Gln Ser His Ala
500 505 510

Val Ala Asp Thr Ile Thr Ala Leu Thr Ala Asp Pro Asn Phe Thr Ala
515 520 525

Ala Leu Ala Ala Val Ile Ser Ser Met Ile Asn Gly Thr Asn His His
530 535 540

Asp Gly Glu Gly Asn Asn Lys Asn Gln
545 550

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ctcttctctt ttgtctcttt tactcttttt ttacctctct cttcattgtt cttcacc 117

atg tct aat gaa acc aga gat ctc tac aac tac caa tac cct tca tcg 165
Met Ser Asn Glu Thr Arg Asp Leu Tyr Asn Tyr Gln Tyr Pro Ser Ser
1 5 10 15

ttt tcg ttg cac gaa atg atg aat ctg cct act tca aat cca tct tct 213

Phe	Ser	Leu	His	Glu	Met	Met	Asn	Leu	Pro	Thr	Ser	Asn	Pro	Ser	Ser	
			20					25					30			
tat	gga	aac	ctc	cca	tca	caa	aac	ggg	ttt	aat	cca	tct	act	tat	tcc	261
Tyr	Gly	Asn	Leu	Pro	Ser	Gln	Asn	Gly	Phe	Asn	Pro	Ser	Thr	Tyr	Ser	
		35					40					45				
ttc	acc	gat	tgt	ctc	caa	agt	tct	cca	gca	gag	tat	gaa	tct	cta	ctt	309
Phe	Thr	Asp	Cys	Leu	Gln	Ser	Ser	Pro	Ala	Ala	Tyr	Glu	Ser	Leu	Leu	
		50				55					60					
cag	aaa	act	ttt	ggg	ctt	tct	ccc	tct	tcc	tca	gag	ggt	ttc	aat	tct	357
Gln	Lys	Thr	Phe	Gly	Leu	Ser	Pro	Ser	Ser	Ser	Glu	Val	Phe	Asn	Ser	
		65			70					75					80	
tgc	atc	gat	caa	gaa	cgc	aac	cgt	gat	ggt	act	aat	gac	gta	atc	aat	405
Ser	Ile	Asp	Gln	Glu	Pro	Asn	Arg	Asp	Val	Thr	Asn	Asp	Val	Ile	Asn	
					85				90					95		
ggg	ggg	gca	tgc	aac	gag	act	gaa	act	agg	ggt	tct	cct	tct	aat	tct	453
Gly	Gly	Ala	Cys	Asn	Glu	Thr	Glu	Thr	Arg	Val	Ser	Pro	Ser	Asn	Ser	
			100					105					110			
tcc	tct	agt	gag	gct	gat	cac	ccc	ggg	gaa	gat	tcc	ggg	aag	agc	cgg	501
Ser	Ser	Ser	Glu	Ala	Asp	His	Pro	Gly	Glu	Asp	Ser	Gly	Lys	Ser	Arg	
		115				120					125					
agg	aaa	cga	gag	tta	gtc	ggg	gaa	gaa	gat	caa	att	tcc	aaa	aaa	gtt	549
Arg	Lys	Arg	Glu	Leu	Val	Gly	Glu	Glu	Asp	Gln	Ile	Ser	Lys	Lys	Val	
		130				135					140					
ggg	aaa	acg	aaa	aag	act	gag	gtg	aag	aaa	caa	aga	gag	cca	cga	gtc	597
Gly	Lys	Thr	Lys	Lys	Thr	Glu	Val	Lys	Lys	Gln	Arg	Glu	Pro	Arg	Val	
		145			150					155					160	
tgc	ttt	atg	act	aaa	agt	gaa	ggt	gat	cat	ctt	gaa	gat	ggg	tat	aga	645
Ser	Phe	Met	Thr	Lys	Ser	Glu	Val	Asp	His	Leu	Glu	Asp	Gly	Tyr	Arg	
				165					170					175		
tgg	aga	aaa	tac	ggc	caa	aag	gct	gta	aaa	aat	agc	cct	tat	cca	agg	693
Trp	Arg	Lys	Tyr	Gly	Gln	Lys	Ala	Val	Lys	Asn	Ser	Pro	Tyr	Pro	Arg	
			180					185					190			
agt	tac	tat	aga	tgt	aca	aca	caa	aag	tgc	aac	gtg	aag	aaa	cga	gtg	741
Ser	Tyr	Tyr	Arg	Cys	Thr	Thr	Gln	Lys	Cys	Asn	Val	Lys	Lys	Arg	Val	
		195					200				205					
gag	aga	tgc	ttc	caa	gat	cca	acg	ggt	gtg	att	aca	act	tac	gag	ggg	789
Glu	Arg	Ser	Phe	Gln	Asp	Pro	Thr	Val	Val	Ile	Thr	Thr	Tyr	Glu	Gly	
		210				215					220					
caa	cac	aac	cac	cgc	att	cgc	act	aat	ctt	cga	gga	agt	tct	gcc	gcg	837
Gln	His	Asn	His	Pro	Ile	Pro	Thr	Asn	Leu	Arg	Gly	Ser	Ser	Ala	Ala	
		225			230					235					240	
gct	gct	atg	ttc	tcc	gca	gac	ctc	atg	act	cca	aga	agc	ttt	gca	cat	885
Ala	Ala	Met	Phe	Ser	Ala	Asp	Leu	Met	Thr	Pro	Arg	Ser	Phe	Ala	His	

	245		250		255	
	gat atg ttt agg acg gca gct tat act aac ggc ggt tct gtg gcg gcg		933			
	Asp Met Phe Arg Thr Ala Ala Tyr Thr Asn Gly Gly Ser Val Ala Ala					
	260	265	270			
	gct ttg gat tat gga tat gga caa agt ggt tat ggt agt gtg aat tca		981			
	Ala Leu Asp Tyr Gly Tyr Gly Gln Ser Gly Tyr Gly Ser Val Asn Ser					
	275	280	285			
	aac cct agt tct cac caa gtg tat cat caa ggg ggt gag tat gag ctc		1029			
	Asn Pro Ser Ser His Gln Val Tyr His Gln Gly Gly Glu Tyr Glu Leu					
	290	295	300			
	ttg agg gag att ttt cct tca att ttc ttt aag caa gag cct tga		1074			
	Leu Arg Glu Ile Phe Pro Ser Ile Phe Phe Lys Gln Glu Pro					
	305	310	315			
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	aa		1136			
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	Phe Ser Leu His Glu Met Met Asn Leu Pro Thr Ser Asn Pro Ser Ser					
	20 25 30					
	Tyr Gly Asn Leu Pro Ser Gln Asn Gly Phe Asn Pro Ser Thr Tyr Ser					
	35 40 45					
	Phe Thr Asp Cys Leu Gln Ser Ser Pro Ala Ala Tyr Glu Ser Leu Leu					
	50 55 60					
	Gln Lys Thr Phe Gly Leu Ser Pro Ser Ser Ser Glu Val Phe Asn Ser					
	65 70 75 80					
	Ser Ile Asp Gln Glu Pro Asn Arg Asp Val Thr Asn Asp Val Ile Asn					
	85 90 95					
	Gly Gly Ala Cys Asn Glu Thr Glu Thr Arg Val Ser Pro Ser Asn Ser					
	100 105 110					
	Ser Ser Ser Glu Ala Asp His Pro Gly Glu Asp Ser Gly Lys Ser Arg					
	115 120 125					

Arg Lys Arg Glu Leu Val Gly Glu Glu Asp Gln Ile Ser Lys Lys Val
130 135 140

Gly Lys Thr Lys Lys Thr Glu Val Lys Lys Gln Arg Glu Pro Arg Val
145 150 155 160

Ser Phe Met Thr Lys Ser Glu Val Asp His Leu Glu Asp Gly Tyr Arg
165 170 175

Trp Arg Lys Tyr Gly Gln Lys Ala Val Lys Asn Ser Pro Tyr Pro Arg
180 185 190

Ser Tyr Tyr Arg Cys Thr Thr Gln Lys Cys Asn Val Lys Lys Arg Val
195 200 205

Glu Arg Ser Phe Gln Asp Pro Thr Val Val Ile Thr Thr Tyr Glu Gly
210 215 220

Gln His Asn His Pro Ile Pro Thr Asn Leu Arg Gly Ser Ser Ala Ala
225 230 235 240

Ala Ala Met Phe Ser Ala Asp Leu Met Thr Pro Arg Ser Phe Ala His
245 250 255

Asp Met Phe Arg Thr Ala Ala Tyr Thr Asn Gly Gly Ser Val Ala Ala
260 265 270

Ala Leu Asp Tyr Gly Tyr Gly Gln Ser Gly Tyr Gly Ser Val Asn Ser
275 280 285

Asn Pro Ser Ser His Gln Val Tyr His Gln Gly Gly Glu Tyr Glu Leu
290 295 300

Leu Arg Glu Ile Phe Pro Ser Ile Phe Phe Lys Gln Glu Pro
305 310 315

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gaataagtag aagatatctc ttaccttctc cttcttctaa taagatcaga gttttgttc 120
ttattttttt gacctctcaa aaca atg ggt aga tca ccg tgt tgt gac aaa 171

Met Gly Arg Ser Pro Cys Cys Asp Lys
1 5

ttg ggt ttg aag aaa gga cct tgg aca cca gag gag gat cag aaa ctt Leu Gly Leu Lys Lys Gly Pro Trp Thr Pro Glu Glu Asp Gln Lys Leu 10 15 20 25	219
tta gct tat att gaa gaa cat ggt cat gga agt tgg cgt tca ttg cct Leu Ala Tyr Ile Glu Glu His Gly His Gly Ser Trp Arg Ser Leu Pro 30 35 40	267
gag aaa gct ggt ctc cat cga tgc gga aag agt tgt aga cta aga tgg Glu Lys Ala Gly Leu His Arg Cys Gly Lys Ser Cys Arg Leu Arg Trp 45 50 55	315
act aac tac cta aga cct gac atc aaa aga ggc aaa ttc aac tta caa Thr Asn Tyr Leu Arg Pro Asp Ile Lys Arg Gly Lys Phe Asn Leu Gln 60 65 70	363
gaa gaa caa acc att atc caa ctc cat gct ctg tta gga aac aga tgg Glu Glu Gln Thr Ile Ile Gln Leu His Ala Leu Leu Gly Asn Arg Trp 75 80 85	411
tca gcg att gct act cat ttg cca aag aga aca gac aac gag atc aag Ser Ala Ile Ala Thr His Leu Pro Lys Arg Thr Asp Asn Glu Ile Lys 90 95 100 105	459
aac tat tgg aac act cat ttg aag aaa cgg tta gtg aaa atg ggg att Asn Tyr Trp Asn Thr His Leu Lys Lys Arg Leu Val Lys Met Gly Ile 110 115 120	507
gat cca gtg act cat aaa ccc aaa aac gag act cct tta tct tct ctt Asp Pro Val Thr His Lys Pro Lys Asn Glu Thr Pro Leu Ser Ser Leu 125 130 135	555
ggt cta tcc aag aac gca gct ata ctt agc cac act gct caa tgg gaa Gly Leu Ser Lys Asn Ala Ala Ile Leu Ser His Thr Ala Gln Trp Glu 140 145 150	603
agt gca agg ctt gaa gct gaa gca aga cta gct aga gaa tca aag ctt Ser Ala Arg Leu Glu Ala Glu Ala Arg Leu Ala Arg Glu Ser Lys Leu 155 160 165	651
ott cat tta caa cat tac caa acc aaa aca tca tct caa cct cat cat Leu His Leu Gln His Tyr Gln Thr Lys Thr Ser Ser Gln Pro His His 170 175 180 185	699
cat cat gga ttc act cac aag tca ttg tta cct aat tgg aca aca aaa His His Gly Phe Thr His Lys Ser Leu Leu Pro Asn Trp Thr Thr Lys 190 195 200	747
cca cac gaa gat caa caa cag ctt gaa tct ccg aca tct aca gtg tca Pro His Glu Asp Gln Gln Gln Leu Glu Ser Pro Thr Ser Thr Val Ser 205 210 215	795
ttc tct gag atg aag gaa tca atc ccg gcg aag ata gag ttt gtc gga Phe Ser Glu Met Lys Glu Ser Ile Pro Ala Lys Ile Glu Phe Val Gly	843

Pro Lys Arg Thr Asp Asn Glu Ile Lys Asn Tyr Trp Asn Thr His Leu
100 105 110

Lys Lys Arg Leu Val Lys Met Gly Ile Asp Pro Val Thr His Lys Pro
115 120 125

Lys Asn Glu Thr Pro Leu Ser Ser Leu Gly Leu Ser Lys Asn Ala Ala
130 135 140

Ile Leu Ser His Thr Ala Gln Trp Glu Ser Ala Arg Leu Glu Ala Glu
145 150 155 160

Ala Arg Leu Ala Arg Glu Ser Lys Leu Leu His Leu Gln His Tyr Gln
165 170 175

Thr Lys Thr Ser Ser Gln Pro His His His His Gly Phe Thr His Lys
180 185 190

Ser Leu Leu Pro Asn Trp Thr Thr Lys Pro His Glu Asp Gln Gln Gln
195 200 205

Leu Glu Ser Pro Thr Ser Thr Val Ser Phe Ser Glu Met Lys Glu Ser
210 215 220

Ile Pro Ala Lys Ile Glu Phe Val Gly Ser Ser Thr Gly Val Thr Leu
225 230 235 240

Met Lys Glu Pro Glu His Asp Trp Ile Asn Ser Thr Met His Glu Phe
245 250 255

Glu Thr Thr Gln Met Gly Glu Gly Ile Glu Glu Gly Phe Thr Gly Leu
260 265 270

Leu Leu Gly Gly Asp Ser Ile Asp Arg Ser Phe Ser Gly Asp Lys Asn
275 280 285

Glu Thr Ala Gly Glu Ser Ser Gly Gly Asp Cys Asn Tyr Tyr Glu Asp
290 295 300

Asn Lys Asn Tyr Leu Asp Ser Ile Phe Asn Phe Val Asp Pro Ser Pro
305 310 315 320

Ser Asp Ser Pro Met Phe
325

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Met Ser Asn Pro Thr Arg Lys Asn Met Glu Arg
1 5 10

att aaa ggt cca tgg agt cca gaa gaa gat gat ctg ttg cag agg ctt 101
Ile Lys Gly Pro Trp Ser Pro Glu Glu Asp Asp Leu Leu Gln Arg Leu
15 20 25

gtt cag aaa cat ggt ccg agg aac tgg tct ttg att agc aaa tca atc 149
Val Gln Lys His Gly Pro Arg Asn Trp Ser Leu Ile Ser Lys Ser Ile
30 35 40

cct gga cgt tcc ggc aaa tct tgt cgt ctc cgg tgg tgt aac cag cta 197
Pro Gly Arg Ser Gly Lys Ser Cys Arg Leu Arg Trp Cys Asn Gln Leu
45 50 55

tct ccg gag gta gag cac cgt gct ttt tcg cag gaa gaa gac gag acg 245
Ser Pro Glu Val Glu His Arg Ala Phe Ser Gln Glu Glu Asp Glu Thr
60 65 70 75

att att cga gct cac gct cgg ttt ggt aac aag tgg gct acg atc tct 293
Ile Ile Arg Ala His Ala Arg Phe Gly Asn Lys Trp Ala Thr Ile Ser
80 85 90

cgt ctt ctc aat gga cga acc gat aac gct atc aag aat cat tgg aac 341
Arg Leu Leu Asn Gly Arg Thr Asp Asn Ala Ile Lys Asn His Trp Asn
95 100 105

tcg acg ctg aag cga aaa tgc agc gtc gaa ggg caa agt tgt gat ttt 389
Ser Thr Leu Lys Arg Lys Cys Ser Val Glu Gly Gln Ser Cys Asp Phe
110 115 120

ggt ggt aat gga ggg tat gat ggt aat tta gga gaa gag caa ccg ttg 437
Gly Gly Asn Gly Gly Tyr Asp Gly Asn Leu Gly Glu Glu Gln Pro Leu
125 130 135

aaa cgt acg gcg agt ggt ggt ggt gtc tcg act ggc ttg tat atg 485
Lys Arg Thr Ala Ser Gly Gly Gly Val Ser Thr Gly Leu Tyr Met
140 145 150 155

agt ccc gga agt cca tcg gga tct gac gtc agc gag caa tct agt ggt 533
Ser Pro Gly Ser Pro Ser Gly Ser Asp Val Ser Glu Gln Ser Ser Gly
160 165 170

ggt gca cac gtg ttt aaa cca acg gtt aga tct gag gtt aca gcg tca 581
Gly Ala His Val Phe Lys Pro Thr Val Arg Ser Glu Val Thr Ala Ser
175 180 185

tcg tct ggt gaa gat cct cca act tat ctt agt ttg tct ctt cct tgg 629
 Ser Ser Gly Glu Asp Pro Pro Thr Tyr Leu Ser Leu Ser Leu Pro Trp
 190 195 200

act gac gag acg gtt cga gtc aac gag ccg gtt caa ctt aac cag aat 677
 Thr Asp Glu Thr Val Arg Val Asn Glu Pro Val Gln Leu Asn Gln Asn
 205 210 215

acg gtt atg gac ggt ggt tat acg gcg gag ctg ttt ccg gtt aga aag 725
 Thr Val Met Asp Gly Tyr Thr Ala Glu Leu Phe Pro Val Arg Lys
 220 225 230 235

gaa gag caa gtg gaa gta gaa gaa gaa gaa gcg aag ggg ata tct ggt 773
 Glu Glu Gln Val Glu Val Glu Glu Glu Glu Ala Lys Gly Ile Ser Gly
 240 245 250

gga ttc ggt ggt gag ttc atg acg gtg gtt cag gag atg ata agg acg 821
 Gly Phe Gly Gly Glu Phe Met Thr Val Val Gln Glu Met Ile Arg Thr
 255 260 265

gag gtg agg agt tac atg gcg gat tta cag cga gga aac gtc ggt ggt 869
 Glu Val Arg Ser Tyr Met Ala Asp Leu Gln Arg Gly Asn Val Gly Gly
 270 275 280

agt agt tct ggc ggc gga ggt ggc ggt tcg tgt atg cca caa agt gta 917
 Ser Ser Ser Gly Gly Gly Gly Gly Gly Ser Cys Met Pro Gln Ser Val
 285 290 295

aac agc cgt cgt gtt ggg ttt aga gag ttt ata gtg aac caa atc gga 965
 Asn Ser Arg Arg Val Gly Phe Arg Glu Phe Ile Val Asn Gln Ile Gly
 300 305 310 315

att ggg aag atg gag tag gcggcc 989
 Ile Gly Lys Met Glu
 320

<210> 366 <211> 320 <212> PRT <213> Arabidopsis thaliana <400> 366

Met Ser Asn Pro Thr Arg Lys Asn Met Glu Arg Ile Lys Gly Pro Trp
 1 5 10 15

Ser Pro Glu Glu Asp Asp Leu Leu Gln Arg Leu Val Gln Lys His Gly
 20 25 30

Pro Arg Asn Trp Ser Leu Ile Ser Lys Ser Ile Pro Gly Arg Ser Gly
 35 40 45

Lys Ser Cys Arg Leu Arg Trp Cys Asn Gln Leu Ser Pro Glu Val Glu
 50 55 60

His Arg Ala Phe Ser Gln Glu Glu Asp Glu Thr Ile Ile Arg Ala His
 65 70 75 80

Ala Arg Phe Gly Asn Lys Trp Ala Thr Ile Ser Arg Leu Leu Asn Gly
85 90 95

Arg Thr Asp Asn Ala Ile Lys Asn His Trp Asn Ser Thr Leu Lys Arg
100 105 110

Lys Cys Ser Val Glu Gly Gln Ser Cys Asp Phe Gly Gly Asn Gly Gly
115 120 125

Tyr Asp Gly Asn Leu Gly Glu Glu Gln Pro Leu Lys Arg Thr Ala Ser
130 135 140

Gly Gly Gly Gly Val Ser Thr Gly Leu Tyr Met Ser Pro Gly Ser Pro
145 150 155 160

Ser Gly Ser Asp Val Ser Glu Gln Ser Ser Gly Gly Ala His Val Phe
165 170 175

Lys Pro Thr Val Arg Ser Glu Val Thr Ala Ser Ser Ser Gly Glu Asp
180 185 190

Pro Pro Thr Tyr Leu Ser Leu Ser Leu Pro Trp Thr Asp Glu Thr Val
195 200 205

Arg Val Asn Glu Pro Val Gln Leu Asn Gln Asn Thr Val Met Asp Gly
210 215 220

Gly Tyr Thr Ala Glu Leu Phe Pro Val Arg Lys Glu Glu Gln Val Glu
225 230 235 240

Val Glu Glu Glu Glu Ala Lys Gly Ile Ser Gly Gly Phe Gly Gly Gly
245 250 255

Phe Met Thr Val Val Gln Glu Met Ile Arg Thr Glu Val Arg Ser Tyr
260 265 270

Met Ala Asp Leu Gln Arg Gly Asn Val Gly Gly Ser Ser Ser Gly Gly
275 280 285

Gly Gly Gly Gly Ser Cys Met Pro Gln Ser Val Asn Ser Arg Arg Val
290 295 300

Gly Phe Arg Glu Phe Ile Val Asn Gln Ile Gly Ile Gly Lys Met Glu
305 310 315 320

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Met Ala Lys Thr Lys Tyr Gly Glu Arg His Arg Lys Gly Leu Trp Ser
1 5 10 15
cct gaa gaa gac gag aag cta agg agc ttc atc ctc tct tat ggc cat 96
Pro Glu Glu Asp Glu Lys Leu Arg Ser Phe Ile Leu Ser Tyr Gly His
20 25 30
tct tgc tgg acc act gtt ccc atc aaa gct ggg tta caa agg aat ggg 144
Ser Cys Trp Thr Thr Val Pro Ile Lys Ala Gly Leu Gln Arg Asn Gly
35 40 45
aag agc tgc aga tta aga tgg att aat tac cta aga cca ggg tta aag 192
Lys Ser Cys Arg Leu Arg Trp Ile Asn Tyr Leu Arg Pro Gly Leu Lys
50 55 60
agg gat atg att agt gca gaa gaa gag act atc ttg acg ttt cat 240
Arg Asp Met Ile Ser Ala Glu Glu Glu Thr Ile Leu Thr Phe His
65 70 75 80
tct ccc ttg ggt aac aag tgg tcg caa ata gct aaa ttc tta ccg gga 288
Ser Pro Leu Gly Asn Lys Trp Ser Gln Ile Ala Lys Phe Leu Pro Gly
85 90 95
aga aca gac aat gag ata aag aac tat tgg cac tct cat ttg aaa aag 336
Arg Thr Asp Asn Glu Ile Lys Asn Tyr Trp His Ser His Leu Lys Lys
100 105 110
aaa tgg ctc aag tct cag agc tta caa gat gca aaa tct att tcc cct 384
Lys Trp Leu Lys Ser Gln Ser Leu Gln Asp Ala Lys Ser Ile Ser Pro
115 120 125
cct tcg tct tca tca tca tca ctt gtt gct tgt gga gaa aga aat ccg 432
Pro Ser Ser Ser Ser Ser Ser Leu Val Ala Cys Gly Glu Arg Asn Pro
130 135 140
gaa acc ttg atc tcg aat cac gtg ttc tcc ctc cag aga ctt cta gag 480
Glu Thr Leu Ile Ser Asn His Val Phe Ser Leu Gln Arg Leu Leu Glu
145 150 155 160
aac aaa tct tca tct ccc tca caa gaa agc aac gga aat aac agc cat 528
Asn Lys Ser Ser Ser Pro Ser Gln Glu Ser Asn Gly Asn Asn Ser His
165 170 175
caa tgt tct tct gct cct gag att cca agg ctt ttc ttc tct gaa tgg 576
Gln Cys Ser Ser Ala Pro Glu Ile Pro Arg Leu Phe Phe Ser Glu Trp
180 185 190

Lys Trp Leu Lys Ser Gln Ser Leu Gln Asp Ala Lys Ser Ile Ser Pro
115 120 125

Pro Ser Ser Ser Ser Ser Ser Leu Val Ala Cys Gly Glu Arg Asn Pro
130 135 140

Glu Thr Leu Ile Ser Asn His Val Phe Ser Leu Gln Arg Leu Leu Glu
145 150 155 160

Asn Lys Ser Ser Ser Pro Ser Gln Glu Ser Asn Gly Asn Asn Ser His
165 170 175

Gln Cys Ser Ser Ala Pro Glu Ile Pro Arg Leu Phe Phe Ser Glu Trp
180 185 190

Leu Ser Ser Ser Tyr Pro His Thr Asp Tyr Ser Ser Glu Phe Thr Asp
195 200 205

Ser Lys His Ser Gln Ala Pro Asn Val Glu Glu Thr Leu Ser Ala Tyr
210 215 220

Glu Glu Met Gly Asp Val Asp Gln Phe His Tyr Asn Glu Met Met Ile
225 230 235 240

Asn Asn Ser Asn Trp Thr Leu Asn Asp Ile Val Phe Gly Ser Lys Cys
245 250 255

Lys Lys Gln Glu His His Ile Tyr Arg Glu Ala Ser Asp Cys Asn Ser
260 265 270

Ser Ala Glu Phe Phe Ser Pro Pro Thr Thr Thr
275 280

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<222> (1)..(723) <223> G342

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Met Asp Val Tyr Gly Met Ser Ser Pro Asp Leu Leu Arg Ile Asp Asp
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ctt ctc gat ttc tcc aac gac gaa atc ttc tct tcc tct tcc acc gtc 96
Leu Leu Asp Phe Ser Asn Asp Glu Ile Phe Ser Ser Ser Thr Val
20 25 30

act tcc tcc gcc gct tcc tcc gcc gct tct tcc gaa aac cct ttc agc 144

1	5	10	15
Leu Leu Asp	Phe Ser Asn Asp Glu Ile Phe Ser Ser Ser Ser Thr Val		
	20	25	30
Thr Ser Ser	Ala Ala Ser Ser Ala Ala Ser Ser Glu Asn Pro Phe Ser		
	35	40	45
Phe Pro Ser	Ser Thr Tyr Thr Ser Pro Thr Leu Leu Thr Asp Phe Thr		
	50	55	60
His Asp Leu	Cys Val Pro Ser Asp Asp Ala Ala His Leu Glu Trp Leu		
	65	70	75
Ser Arg Phe	Val Asp Asp Ser Phe Ser Asp Phe Pro Ala Asn Pro Leu		
	85	90	95
Thr Met Thr	Val Arg Pro Glu Ile Ser Phe Thr Gly Lys Pro Arg Ser		
	100	105	110
Arg Arg Ser	Arg Ala Pro Ala Pro Ser Val Ala Gly Thr Trp Ala Pro		
	115	120	125
Met Ser Glu	Ser Glu Leu Cys His Ser Val Ala Lys Pro Lys Pro Lys		
	130	135	140
Lys Val Tyr	Asn Ala Glu Ser Val Thr Ala Asp Gly Ala Arg Arg Cys		
	145	150	155
Thr His Cys	Ala Ser Glu Lys Thr Pro Gln Trp Arg Thr Gly Pro Leu		
	165	170	175
Gly Pro Lys	Thr Leu Cys Asn Ala Cys Gly Val Arg Tyr Lys Ser Gly		
	180	185	190
Arg Leu Val	Pro Glu Tyr Arg Pro Ala Ser Ser Pro Thr Phe Val Leu		
	195	200	205
Thr Gln His	Ser Asn Ser His Arg Lys Val Met Glu Leu Arg Arg Gln		
	210	215	220
Lys Glu Gln	Gln Glu Ser Cys Val Arg Ile Pro Pro Phe Gln Pro Gln		
	225	230	235
			240

agt ggc cac cgt ggg ttt gac ctc aac ata ccg ccg ata ccg gaa ttc 678
Ser Gly His Arg Gly Phe Asp Leu Asn Ile Pro Pro Ile Pro Glu Phe
200 205 210

tgc atg gtc aac gga gac gaa gag gtg atg agt cct atg ccg gcg aag 726
Ser Met Val Asn Gly Asp Glu Glu Val Met Ser Pro Met Pro Ala Lys
215 220 225

aaa ctc cgg ttt gac ttc ccg gag aaa ccc taa acataaacct agggaaaaact 779
Lys Leu Arg Phe Asp Phe Pro Glu Lys Pro
230 235

ttacagaatt cattttatag gaaattgttt tactgtatat acaaatatcg attttgattg 839

atgttcttct tcaactgaaaa attatgattc tttgttgat aattgatgtt tctgaaaaag 899

atataacttt ttattaaaaa aaaaaaaaaa aaa 932

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Met Ala Leu Glu Thr Leu Thr Ser Pro Arg Leu Ser Ser Pro Met Pro
1 5 10 15

Thr Leu Phe Gln Asp Ser Ala Leu Gly Phe His Gly Ser Lys Gly Lys
20 25 30

Arg Ser Lys Arg Ser Arg Ser Glu Phe Asp Arg Gln Ser Leu Thr Glu
35 40 45

Asp Glu Tyr Ile Ala Leu Cys Leu Met Leu Leu Ala Arg Asp Gly Asp
50 55 60

Arg Asn Arg Asp Leu Asp Leu Pro Ser Ser Ser Ser Ser Pro Pro Leu
65 70 75 80

Leu Pro Pro Leu Pro Thr Pro Ile Tyr Lys Cys Ser Val Cys Asp Lys
85 90 95

Ala Phe Ser Ser Tyr Gln Ala Leu Gly Gly His Lys Ala Ser His Arg
100 105 110

Lys Ser Phe Ser Leu Thr Gln Ser Ala Gly Gly Asp Glu Leu Ser Thr
115 120 125

Ser Ser Ala Ile Thr Thr Ser Gly Ile Ser Gly Gly Gly Gly Gly Ser
130 135 140

Val Lys Ser His Val Cys Ser Ile Cys His Lys Ser Phe Ala Thr Gly
145 150 155 160

Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Glu Gly Lys Asn Gly
165 170 175

Gly Gly Val Ser Ser Ser Val Ser Asn Ser Glu Asp Val Gly Ser Thr
180 185 190

Ser His Val Ser Ser Gly His Arg Gly Phe Asp Leu Asn Ile Pro Pro
195 200 205

Ile Pro Glu Phe Ser Met Val Asn Gly Asp Glu Glu Val Met Ser Pro
210 215 220

Met Pro Ala Lys Lys Leu Arg Phe Asp Phe Pro Glu Lys Pro
225 230 235

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ttaggtttct caataattct ccgcattctat cttttcttct ccacaagtaa ggaaccaga 180

aaaccagga agaatccgag caagctaggg ttctattgtg tgcacaaat gggatataca 240

ggcagaagaa aatcgagata aatcaactaa atgatttggg taatcatctt gaagatttga 300

aggatttcca gactaagtc ggccgagaag tcacc atg gag aat cct tta gaa 353
Met Glu Asn Pro Leu Glu
1 5

gaa gag ctt caa gat cct aat cag cgt ccc aac aaa aag aag cgt tac 401
Glu Glu Leu Gln Asp Pro Asn Gln Arg Pro Asn Lys Lys Lys Arg Tyr
10 15 20

cac cgt cac aca caa cgc cag att caa gag cta gag tgc ttc ttc aag 449
His Arg His Thr Gln Arg Gln Ile Gln Glu Leu Glu Ser Phe Phe Lys
25 30 35

gaa tgt cct cat cca gac gat aag caa aga aag gag ctg agt cgc gag 497
Glu Cys Pro His Pro Asp Lys Lys Gln Arg Lys Glu Leu Ser Arg Glu
40 45 50

cta agc tta gaa cct ctt caa gtc aag ttc tgg ttc caa aac aaa cgc 545
Leu Ser Leu Glu Pro Leu Gln Val Lys Phe Trp Phe Gln Asn Lys Arg

55	60	65	70	
act caa atg aag gca caa cat gag agg cac gag aac cag ata ctg aag				593
Thr Gln Met Lys Ala Gln His Glu Arg His Glu Asn Gln Ile Leu Lys				
	75	80	85	
tca gaa aat gac aag ctc cga gca gag aac aat agg tac aag gat gct				641
Ser Glu Asn Asp Lys Leu Arg Ala Glu Asn Asn Arg Tyr Lys Asp Ala				
	90	95	100	
cta agc aac gca aca tgc cca aac tgt ggt ggt ccg gca gct ata gga				689
Leu Ser Asn Ala Thr Cys Pro Asn Cys Gly Gly Pro Ala Ala Ile Gly				
	105	110	115	
gaa atg tcc ttc gac gaa cag cat tta agg atc gaa aat gct cgt tta				737
Glu Met Ser Phe Asp Glu Gln His Leu Arg Ile Glu Asn Ala Arg Leu				
	120	125	130	
cgc gaa gag att gac aga atc tct gcc ata gct gct aaa tac gta ggg				785
Arg Glu Glu Ile Asp Arg Ile Ser Ala Ile Ala Lys Tyr Val Gly				
	135	140	145	150
aag cct tta atg gct aat tcc tct tct tto cct cag ctc tct tct tca				833
Lys Pro Leu Met Ala Asn Ser Ser Ser Phe Pro Gln Leu Ser Ser Ser				
	155	160	165	
cac cac att ccc tcg cgc tcg ctt gat ctt gaa gtt ggg aac ttt ggg				881
His His Ile Pro Ser Arg Ser Leu Asp Leu Glu Val Gly Asn Phe Gly				
	170	175	180	
aac aat aac aat agc cac act ggt ttc gtt ggg gaa atg ttt gga agc				929
Asn Asn Asn Asn Ser His Thr Gly Phe Val Gly Glu Met Phe Gly Ser				
	185	190	195	
agc gac att ttg agg tcg gtt tcg ata cct tct gag gct gat aag cct				977
Ser Asp Ile Leu Arg Ser Val Ser Ile Pro Ser Glu Ala Asp Lys Pro				
	200	205	210	
atg att gtt gag tta gct gtt gca gca atg gaa gag ctt gtg aga atg				1025
Met Ile Val Glu Leu Ala Val Ala Ala Met Glu Glu Leu Val Arg Met				
	215	220	225	230
gct caa act ggt gat ccc tta tgg gtt tca agc gat aat tct gtt gag				1073
Ala Gln Thr Gly Asp Pro Leu Trp Val Ser Ser Asp Asn Ser Val Glu				
	235	240	245	
att ctc aat gaa gaa gag tat ttt agg acg ttt cct aga gga att gga				1121
Ile Leu Asn Glu Glu Glu Tyr Phe Arg Thr Phe Pro Arg Gly Ile Gly				
	250	255	260	
ccg aaa cct atc ggt ttg aga tca gaa gct tca aga gag tct act gtt				1169
Pro Lys Pro Ile Gly Leu Arg Ser Glu Ala Ser Arg Glu Ser Thr Val				
	265	270	275	
gtt atc atg aat cat atc aat ctc att gag att cta atg gat gtg aat				1217
Val Ile Met Asn His Ile Asn Leu Ile Glu Ile Leu Met Asp Val Asn				
	280	285	290	

caa tgg tct agt gtg ttc tgc ggg att gta tca aga gca ttg act cta Gln Trp Ser Ser Val Phe Cys Gly Ile Val Ser Arg Ala Leu Thr Leu 295 300 305 310	1265
gaa gtt ctc tca act ggc gta cga ggg aac tac aat ggg gca ttg caa Glu Val Leu Ser Thr Gly Val Arg Gly Asn Tyr Asn Gly Ala Leu Gln 315 320 325	1313
gtg atg aca gca gag ttc caa gtc cca tgc cgg ctt gtc cct act cgt Val Met Thr Ala Glu Phe Gln Val Pro Ser Pro Leu Val Pro Thr Arg 330 335 340	1361
gag aac tac ttt gta agg tac tgt aaa cag cac agt gac ggt att tgg Glu Asn Tyr Phe Val Arg Tyr Cys Lys Gln His Ser Asp Gly Ile Trp 345 350 355	1409
gcg gtt gtg gat gtc tct ttg gac agc cta aga cca agt cgg atc act Ala Val Val Asp Val Ser Leu Asp Ser Leu Arg Pro Ser Pro Ile Thr 360 365 370	1457
aga agc aga aga aga ccc tct ggt tgt ctg att caa gaa ttg cag aat Arg Ser Arg Arg Arg Pro Ser Gly Cys Leu Ile Gln Glu Leu Gln Asn 375 380 385 390	1505
ggt tac tcc aag gtg aca tgg gta gag cat att gag gtg gat gat aga Gly Tyr Ser Lys Val Thr Trp Val Glu His Ile Glu Val Asp Asp Arg 395 400 405	1553
tcg gtt cac aac atg tat aaa cgg ttg gtt aat acc ggt tta gct ttc Ser Val His Asn Met Tyr Lys Pro Leu Val Asn Thr Gly Leu Ala Phe 410 415 420	1601
ggt gca aaa cgt tgg gtg gct aca ctt gac cgc caa tgt gag cgg ctc Gly Ala Lys Arg Trp Val Ala Thr Leu Asp Arg Gln Cys Glu Arg Leu 425 430 435	1649
gcc agt tcc atg gcc agc aac att cgg gct tgt gat ctt tcc gtg ata Ala Ser Ser Met Ala Ser Asn Ile Pro Ala Cys Asp Leu Ser Val Ile 440 445 450	1697
acg agt cct gag ggg aga aag agc atg ctg aaa cta gcg gag aga atg Thr Ser Pro Glu Gly Arg Lys Ser Met Leu Lys Leu Ala Glu Arg Met 455 460 465 470	1745
gtg atg agc ttc tgt acc gga gtc ggc gcg tca acc gcc gat gcc tgg Val Met Ser Phe Cys Thr Gly Val Gly Ala Ser Thr Ala Asp Ala Trp 475 480 485	1793
act aca ttg tgc acc aca gga tcc gac gac gtt cgg gtc atg acc cga Thr Thr Leu Ser Thr Thr Gly Ser Asp Asp Val Arg Val Met Thr Arg 490 495 500	1841
aag agc atg gat gat cgg gga aga cct cca gcc atc gtt ctc agc gcc Lys Ser Met Asp Asp Pro Gly Arg Pro Pro Gly Ile Val Leu Ser Ala 505 510 515	1889

gct act tct ttc tgg atc cct gta gct cca aaa cga gtg ttc gat ttt Ala Thr Ser Phe Trp Ile Pro Val Ala Pro Lys Arg Val Phe Asp Phe 520 525 530	1937
ctc aga gat gaa aac tca aga agc gag tgg gat ata ctt tcc aat gga Leu Arg Asp Glu Asn Ser Arg Ser Glu Trp Asp Ile Leu Ser Asn Gly 535 540 545 550	1985
ggc ttg gtt caa gaa atg gct cat atc gca aat ggt cgt gat cct ggg Gly Leu Val Gln Glu Met Ala His Ile Ala Asn Gly Arg Asp Pro Gly 555 560 565	2033
aat agt gtc tcc ttg ctt cga gtc aat agt ggg aac tca ggg cag agc Asn Ser Val Ser Leu Leu Arg Val Asn Ser Gly Asn Ser Gly Gln Ser 570 575 580	2081
aac atg ttg atc tta caa gaa agt tgt acg gac gca tca ggg tcc tat Asn Met Leu Ile Leu Gln Glu Ser Cys Thr Asp Ala Ser Gly Ser Tyr 585 590 595	2129
gtg ata tac gca cca gtt gat ata ata gct atg aac gtt gtc ctg agt Val Ile Tyr Ala Pro Val Asp Ile Ile Ala Met Asn Val Val Leu Ser 600 605 610	2177
ggg ggt gat ccg gat tat gtc gct ttg tta cca tcc gga ttc gct att Gly Gly Asp Pro Asp Tyr Val Ala Leu Leu Pro Ser Gly Phe Ala Ile 615 620 625 630	2225
ttg ccg gat ggc tct gct aga gga gga gga ggt agt gct aat gcc agt Leu Pro Asp Gly Ser Ala Arg Gly Gly Gly Ser Ala Asn Ala Ser 635 640 645	2273
gct gga gcc gga gtt gaa gga gga gga gag ggg aat aat ctt gaa gtg Ala Gly Ala Gly Val Glu Gly Gly Gly Glu Gly Asn Asn Leu Glu Val 650 655 660	2321
gtt act act act ggg agt tgt ggc ggt tca cta ctc aca gtt gcg ttt Val Thr Thr Thr Gly Ser Cys Gly Gly Ser Leu Leu Thr Val Ala Phe 665 670 675	2369
cag ata ctt gtt gac tct gtt cct acc gct aaa ctc tct ctc ggt tca Gln Ile Leu Val Asp Ser Val Pro Thr Ala Lys Leu Ser Leu Gly Ser 680 685 690	2417
gtt gct aca gtc aat agt ctg atc aaa tgc act gtc gag cgg att aaa Val Ala Thr Val Asn Ser Leu Ile Lys Cys Thr Val Glu Arg Ile Lys 695 700 705 710	2465
gcc gct ctg gcc tgc gac gga gcc taa tcgatgtttt cggaaggttaa Ala Ala Leu Ala Cys Asp Gly Ala 715	2512
gagtgaaagg ggaggttttag ggagtttatg ataagtgttg tggtcttttg gtttttaaag	2572
tccttttgaga ttctcctaaag gaagtcaaga acgctccttt ttgcgttttaa tctcatttcc	2632
gcgtttgtta gcggacgggc caaagaaaaga ggcttgagaa agaaaaaggtta aagaggttcg	2692

ggtattgact tctgtcggaa ccaaaaaaaaa aggaatcggg tttgttgtgt ttccgcgggt 2752
 tagcattttg cgttttcttt gttattattt atcattgact agtgaacagt ttagegttct 2812
 gcttttcgcg tctactgtga aactccttgt tattaagcca ctctagtggg actgtcatta 2872
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 tctcttct 2940

<210> 374 <211> 718 <212> PRT <213> Arabidopsis thaliana <400> 374

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Asn Lys Lys Lys Arg Tyr His Arg His Thr Gln Arg Gln Ile Gln Glu
 20 25 30

Leu Glu Ser Phe Phe Lys Glu Cys Pro His Pro Asp Asp Lys Gln Arg
 35 40 45

Lys Glu Leu Ser Arg Glu Leu Ser Leu Glu Pro Leu Gln Val Lys Phe
 50 55 60

Trp Phe Gln Asn Lys Arg Thr Gln Met Lys Ala Gln His Glu Arg His
 65 70 75 80

Glu Asn Gln Ile Leu Lys Ser Glu Asn Asp Lys Leu Arg Ala Glu Asn
 85 90 95

Asn Arg Tyr Lys Asp Ala Leu Ser Asn Ala Thr Cys Pro Asn Cys Gly
 100 105 110

Gly Pro Ala Ala Ile Gly Glu Met Ser Phe Asp Glu Gln His Leu Arg
 115 120 125

Ile Glu Asn Ala Arg Leu Arg Glu Glu Ile Asp Arg Ile Ser Ala Ile
 130 135 140

Ala Ala Lys Tyr Val Gly Lys Pro Leu Met Ala Asn Ser Ser Ser Phe
 145 150 155 160

Pro Gln Leu Ser Ser Ser His His Ile Pro Ser Arg Ser Leu Asp Leu
 165 170 175

Glu Val Gly Asn Phe Gly Asn Asn Asn Asn Ser His Thr Gly Phe Val
 180 185 190

Gly Glu Met Phe Gly Ser Ser Asp Ile Leu Arg Ser Val Ser Ile Pro
 195 200 205

Ser Glu Ala Asp Lys Pro Met Ile Val Glu Leu Ala Val Ala Ala Met
 210 215 220

Glu Glu Leu Val Arg Met Ala Gln Thr Gly Asp Pro Leu Trp Val Ser
 225 230 235 240

Ser Asp Asn Ser Val Glu Ile Leu Asn Glu Glu Glu Tyr Phe Arg Thr
 245 250 255

Phe Pro Arg Gly Ile Gly Pro Lys Pro Ile Gly Leu Arg Ser Glu Ala
 260 265 270

Ser Arg Glu Ser Thr Val Val Ile Met Asn His Ile Asn Leu Ile Glu
 275 280 285

Ile Leu Met Asp Val Asn Gln Trp Ser Ser Val Phe Cys Gly Ile Val
 290 295 300

Ser Arg Ala Leu Thr Leu Glu Val Leu Ser Thr Gly Val Arg Gly Asn
 305 310 315 320

Tyr Asn Gly Ala Leu Gln Val Met Thr Ala Glu Phe Gln Val Pro Ser
 325 330 335

Pro Leu Val Pro Thr Arg Glu Asn Tyr Phe Val Arg Tyr Cys Lys Gln
 340 345 350

His Ser Asp Gly Ile Trp Ala Val Val Asp Val Ser Leu Asp Ser Leu
 355 360 365

Arg Pro Ser Pro Ile Thr Arg Ser Arg Arg Arg Pro Ser Gly Cys Leu
 370 375 380

Ile Gln Glu Leu Gln Asn Gly Tyr Ser Lys Val Thr Trp Val Glu His
 385 390 395 400

Ile Glu Val Asp Asp Arg Ser Val His Asn Met Tyr Lys Pro Leu Val
405 410 415

Asn Thr Gly Leu Ala Phe Gly Ala Lys Arg Trp Val Ala Thr Leu Asp
420 425 430

Arg Gln Cys Glu Arg Leu Ala Ser Ser Met Ala Ser Asn Ile Pro Ala
435 440 445

Cys Asp Leu Ser Val Ile Thr Ser Pro Glu Gly Arg Lys Ser Met Leu
450 455 460

Lys Leu Ala Glu Arg Met Val Met Ser Phe Cys Thr Gly Val Gly Ala
465 470 475 480

Ser Thr Ala Asp Ala Trp Thr Thr Leu Ser Thr Thr Gly Ser Asp
485 490 495

Val Arg Val Met Thr Arg Lys Ser Met Asp Asp Pro Gly Arg Pro Pro
500 505 510

Gly Ile Val Leu Ser Ala Ala Thr Ser Phe Trp Ile Pro Val Ala Pro
515 520 525

Lys Arg Val Phe Asp Phe Leu Arg Asp Glu Asn Ser Arg Ser Glu Trp
530 535 540

Asp Ile Leu Ser Asn Gly Gly Leu Val Gln Glu Met Ala His Ile Ala
545 550 555 560

Asn Gly Arg Asp Pro Gly Asn Ser Val Ser Leu Leu Arg Val Asn Ser
565 570 575

Gly Asn Ser Gly Gln Ser Asn Met Leu Ile Leu Gln Glu Ser Cys Thr
580 585 590

Asp Ala Ser Gly Ser Tyr Val Ile Tyr Ala Pro Val Asp Ile Ile Ala
595 600 605

Met Asn Val Val Leu Ser Gly Gly Asp Pro Asp Tyr Val Ala Leu Leu
610 615 620

Pro Ser Gly Phe Ala Ile Leu Pro Asp Gly Ser Ala Arg Gly Gly Gly

625

630

635

640

Gly Ser Ala Asn Ala Ser Ala Gly Ala Gly Val Glu Gly Gly Gly Glu
645 650 655

Gly Asn Asn Leu Glu Val Val Thr Thr Thr Gly Ser Cys Gly Gly Ser
660 665 670

Leu Leu Thr Val Ala Phe Gln Ile Leu Val Asp Ser Val Pro Thr Ala
675 680 685

Lys Leu Ser Leu Gly Ser Val Ala Thr Val Asn Ser Leu Ile Lys Cys
690 695 700

Thr Val Glu Arg Ile Lys Ala Ala Leu Ala Cys Asp Gly Ala
705 710 715

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<222> (217)..(957) <223> G463

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ctttcaaaag actctttctt tcttttggtt tgattttgga ttctagggct ctctttcttt 180

tagtgggttt ttgttggttg tgttgtgggc tctctg atg att act gaa ctt gag
Met Ile Thr Glu Leu Glu
1 5 234

atg ggg aaa ggt gag agt gag ctt gag ctt ggt cta ggg ctg agt ctt 282
Met Gly Lys Gly Glu Ser Glu Leu Glu Leu Gly Leu Gly Leu Ser Leu
10 15 20

ggc ggt gga acg gcg gcc aag att ggt aaa tca ggt ggt ggt ggc gcg 330
Gly Gly Gly Thr Ala Ala Lys Ile Gly Lys Ser Gly Gly Gly Gly Ala
25 30 35

tgg gga gag cgt gga agg ctt ttg acg gct aag gat ttt cct tct gtt 378
Trp Gly Glu Arg Gly Arg Leu Leu Thr Ala Lys Asp Phe Pro Ser Val
40 45 50

ggt tct aaa cgt gct gct gat tct gct tct cat gct ggt tca tct cct 426
Gly Ser Lys Arg Ala Ala Asp Ser Ala Ser His Ala Gly Ser Ser Pro
55 60 65 70

cct cgt tca agt caa gtt gtt gga tgg cct cct ata ggg tca cac agg 474
Pro Arg Ser Ser Gln Val Val Gly Trp Pro Pro Ile Gly Ser His Arg
75 80 85

atg aac agt ttg gtt aat aac caa gct aca aag tca gca aga gaa gaa 522
Met Asn Ser Leu Val Asn Asn Gln Ala Thr Lys Ser Ala Arg Glu Glu
90 95 100

gaa gaa gct ggt aag aag aaa gtg aaa gat gat gaa cct aaa gat gtg 570
Glu Glu Ala Gly Lys Lys Lys Val Lys Asp Asp Glu Pro Lys Asp Val
105 110 115

aca aag aaa gtg aat ggg aaa gta caa gtt gga ttt att aag gtg aac 618
Thr Lys Lys Val Asn Gly Lys Val Gln Val Gly Phe Ile Lys Val Asn
120 125 130

atg gat gga gtt gct ata gga aga aaa gtg gat ttg aat gct cat tct 666
Met Asp Gly Val Ala Ile Gly Arg Lys Val Asp Leu Asn Ala His Ser
135 140 145 150

tct tac gag aat ttg gcg caa aca ttg gaa gat atg ttc ttt cgc act 714
Ser Tyr Glu Asn Leu Ala Gln Thr Leu Glu Asp Met Phe Phe Arg Thr
155 160 165

aat ccg ggt act gtc ggg tta acc agt cag ttc act aaa ccg ttg agg 762
Asn Pro Gly Thr Val Gly Leu Thr Ser Gln Phe Thr Lys Pro Leu Arg
170 175 180

ctt tta gat gga tcg tct gag ttt gta ctt act tat gaa gat aag gaa 810
Leu Leu Asp Gly Ser Ser Glu Phe Val Leu Thr Tyr Glu Asp Lys Glu
185 190 195

gga gat tgg atg ctt gtt ggt gat gtt cca tgg aga atg ttc atc aac 858
Gly Asp Trp Met Leu Val Gly Asp Val Pro Trp Arg Met Phe Ile Asn
200 205 210

tcg gtg aaa agg cta cgt gtg atg aaa acc tct gaa gct aat gga ctc 906
Ser Val Lys Arg Leu Arg Val Met Lys Thr Ser Glu Ala Asn Gly Leu
215 220 225 230

gct gca cga aat caa gaa cca aac gag aga cag cga aag cag ccg gtt 954
Ala Ala Arg Asn Gln Glu Pro Asn Glu Arg Gln Arg Lys Gln Pro Val
235 240 245

tag atctcttttc gacgttacgg tggtacaggt tttatatattt ggggttttgc 1007

aagtctgaga tacttttgaa gcaagcataa gctagattga tttatatatcc agtttgtgta 1067

ttttcttggt ttttataaat gtttttactg gttttcttta gttttttttt ttgctgtctt 1127

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tgacgtagcc tcgag 1262

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Gly Leu Gly Leu Ser Leu Gly Gly Gly Thr Ala Ala Lys Ile Gly Lys
20 25 30

Ser Gly Gly Gly Gly Ala Trp Gly Glu Arg Gly Arg Leu Leu Thr Ala
35 40 45

Lys Asp Phe Pro Ser Val Gly Ser Lys Arg Ala Ala Asp Ser Ala Ser
50 55 60

His Ala Gly Ser Ser Pro Pro Arg Ser Ser Gln Val Val Gly Trp Pro
65 70 75 80

Pro Ile Gly Ser His Arg Met Asn Ser Leu Val Asn Asn Gln Ala Thr
85 90 95

Lys Ser Ala Arg Glu Glu Glu Glu Ala Gly Lys Lys Lys Val Lys Asp
100 105 110

Asp Glu Pro Lys Asp Val Thr Lys Lys Val Asn Gly Lys Val Gln Val
115 120 125

Gly Phe Ile Lys Val Asn Met Asp Gly Val Ala Ile Gly Arg Lys Val
130 135 140

Asp Leu Asn Ala His Ser Ser Tyr Glu Asn Leu Ala Gln Thr Leu Glu
145 150 155 160

Asp Met Phe Phe Arg Thr Asn Pro Gly Thr Val Gly Leu Thr Ser Gln
165 170 175

Phe Thr Lys Pro Leu Arg Leu Leu Asp Gly Ser Ser Glu Phe Val Leu
180 185 190

Thr Tyr Glu Asp Lys Glu Gly Asp Trp Met Leu Val Gly Asp Val Pro
195 200 205

Trp Arg Met Phe Ile Asn Ser Val Lys Arg Leu Arg Val Met Lys Thr
210 215 220

Ser Glu Ala Asn Gly Leu Ala Ala Arg Asn Gln Glu Pro Asn Glu Arg
225 230 235 240

Gln Arg Lys Gln Pro Val
245

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<222> (1)..(2580) <223> G470

<400> 377
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Met Ala Ser Ser Glu Val Ser Met Lys Gly Asn Arg Gly Gly Asp Asn
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ttc tcc tcc tct ggt ttt agt gac cct aag gag act aga aat gtc tcc 96
Phe Ser Ser Ser Gly Phe Ser Asp Pro Lys Glu Thr Arg Asn Val Ser
20 25 30
gtc gcc ggc gag ggg caa aaa agt aat tct acc cga tcc gct gcg gct 144
Val Ala Gly Glu Gly Gln Lys Ser Asn Ser Thr Arg Ser Ala Ala Ala
35 40 45
gag cgt gct ttg gac cct gag gct gct ctt tac aga gag cta tgg cac 192
Glu Arg Ala Leu Asp Pro Glu Ala Ala Leu Tyr Arg Glu Leu Trp His
50 55 60
gct tgt gct ggt ccg ctt gtg acg gtt cct aga caa gac gac cga gtc 240
Ala Cys Ala Gly Pro Leu Val Thr Val Pro Arg Gln Asp Asp Arg Val
65 70 75 80
ttc tat ttt cct caa gga cac atc gag cag gtg gag gct tgc acg aac 288
Phe Tyr Phe Pro Gln Gly His Ile Glu Gln Val Glu Ala Ser Thr Asn
85 90 95
cag gcg gca gaa caa cag atg cct ctc tat gat ctt ccg tca aag ctt 336
Gln Ala Ala Glu Gln Gln Met Pro Leu Tyr Asp Leu Pro Ser Lys Leu
100 105 110
ctc tgt cga gtt att aat gta gat tta aag gca gag gca gat aca gat 384
Leu Cys Arg Val Ile Asn Val Asp Leu Lys Ala Glu Ala Asp Thr Asp
115 120 125
gaa gtt tat gcg cag att act ctt ctt cct gag gct aat caa gac gag 432
Glu Val Tyr Ala Gln Ile Thr Leu Leu Pro Glu Ala Asn Gln Asp Glu
130 135 140
aat gca att gag aaa gaa gcg cct ctt cct cca cct ccg agg ttc cag 480
Asn Ala Ile Glu Lys Glu Ala Pro Leu Pro Pro Pro Arg Phe Gln
145 150 155 160
gtg cat tgc ttc tgc aaa acc ttg act gca tcc gac aca agt aca cat 528
Val His Ser Phe Cys Lys Thr Leu Thr Ala Ser Asp Thr Ser Thr His
165 170 175
ggt gga ttt tct gtt ctt agg cga cat gcg gat gaa tgt ctc cca cct 576
Gly Gly Phe Ser Val Leu Arg Arg His Ala Asp Glu Cys Leu Pro Pro
180 185 190

ctg gat atg tct cga cag cct ccc act caa gag tta gtt gca aag gat	624
Leu Asp Met Ser Arg Gln Pro Pro Thr Gln Glu Leu Val Ala Lys Asp	
195 200 205	
ttg cat gca aat gag tgg cga ttc aga cat ata ttc cgg ggt caa cca	672
Leu His Ala Asn Glu Trp Arg Phe Arg His Ile Phe Arg Gly Gln Pro	
210 215 220	
cgg agg cat ttg cta cag agt ggg tgg agt gtg ttt gtt agc tcc aaa	720
Arg Arg His Leu Leu Gln Ser Gly Trp Ser Val Phe Val Ser Ser Lys	
225 230 235 240	
agg cta gtt gca ggc gat gcg ttt ata ttt cta agg ggc gag aat gga	768
Arg Leu Val Ala Gly Asp Ala Phe Ile Phe Leu Arg Gly Glu Asn Gly	
245 250 255	
gaa tta aga gtt ggt gta agg cgt gcg atg cga caa cga gga aac gtg	816
Glu Leu Arg Val Gly Val Arg Arg Ala Met Arg Gln Gln Gly Asn Val	
260 265 270	
ccg tct tct gtt ata tct agc cat agc atg cat ctt gga gta ctg gcc	864
Pro Ser Ser Val Ile Ser Ser His Ser Met His Leu Gly Val Leu Ala	
275 280 285	
acc gca tgg cat gcc att tca aca ggg act atg ttt aca gtc tac tac	912
Thr Ala Trp His Ala Ile Ser Thr Gly Thr Met Phe Thr Val Tyr Tyr	
290 295 300	
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Lys Pro Arg Thr Ser Pro Ser Glu Phe Ile Val Pro Phe Asp Gln Tyr	
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Val Gly Ile Glu Glu Ser Asp Pro Thr Arg Trp Pro Lys Ser Lys Trp	
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Arg Ser Leu Lys Val Arg Trp Asp Glu Thr Ser Ser Ile Pro Arg Pro	
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Lys Ala Asn Met Asp Pro Leu Pro Ala Ser Gly Leu Ser Arg Val Leu	
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Gln Gly Gln Glu Tyr Ser Thr Leu Arg Thr Lys His Thr Glu Ser Val	
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Glu Cys Asp Ala Pro Glu Asn Ser Val Val Trp Gln Ser Ser Ala Asp	
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Asp Asp Lys Val Asp Val Val Ser Gly Ser Arg Arg Tyr Gly Ser Glu	
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Asn Trp Met Ser Ser Ala Arg His Glu Pro Thr Tyr Thr Asp Leu Leu	
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Ser Gly Phe Gly Thr Asn Ile Asp Pro Ser His Gly Gln Arg Ile Pro	
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Glu Tyr Pro Val Leu Asn Gly Leu Ser Thr Glu Asn Ala Gly Gly Asn	
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Trp Pro Ile Arg Pro Arg Ala Leu Asn Tyr Tyr Glu Glu Val Val Asn	
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Thr Ile Gln Glu Glu Thr Ala Lys Ser Arg Glu Gly Asn Cys Arg Leu	

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	t t t g g c a t t c c t c t g a c c a a c a a c a t g a a t g g g a c a g a c t c a a c c a t g			2016
	P h e G l y I l e P r o L e u T h r A s n A s n M e t A s n G l y T h r A s p S e r T h r M e t			
	660	665	670	
	t c t c a g a g a a a c a a c t t g a a t g a t g c t g c g g g g g c t t a c a c a g a t a g c a			2064
	S e r G l n A r g A s n A s n L e u A s n A s p A l a A l a G l y L e u T h r G l n I l e A l a			
	675	680	685	
	t c a c c a a a g g t t c a g g a c c t t c a g a t c a g t c a a a a g g g t c a a a t c a			2112
	S e r P r o L y s V a l G l n A s p L e u S e r A s p G l n S e r L y s G l y S e r L y s S e r			
	690	695	700	
	a c a a a c g a t c a t c g t g a a c a g g g a a g a c c a t t c a g a c t a a t a a t c c t			2160
	T h r A s n A s p H i s A r g G l u G l n G l y A r g P r o P h e G l n T h r A s n A s n P r o			
	705	710	715	720
	c a t c c g a a g g a t g c t c a a a c g a a a c c a a c t c a a g t a g g a g t t g c a c a			2208
	H i s P r o L y s A s p A l a G l n T h r L y s T h r A s n S e r S e r A r g S e r C y s T h r			
	725	730	735	
	a a g g t t c a c a a g c a g g g a a t t g c a c t t g g c c g t t c a g t g g a t c t t t c a			2256
	L y s V a l H i s L y s G l n G l y I l e A l a L e u G l y A r g S e r V a l A s p L e u S e r			
	740	745	750	
	a a g t t c c a a a c t a t g a g g a g t t a g t c g c g a g c t g g a c a g g c t g t t t			2304
	L y s P h e G l n A s n T y r G l u G l u L e u V a l A l a G l u L e u A s p A r g L e u P h e			
	755	760	765	
	g a g t t c a a t g g a g a g t t g a t g c t c c t a a g a a a g a t t g g t t g a t a t a g t t			2352
	G l u P h e A s n G l y G l u L e u M e t A l a P r o L y s L y s A s p T r p L e u I l e V a l			
	770	775	780	
	t a c a c a g a t g a a g a g a a t g a t a t g a t g c t t g t t g g t g a c g a t c c t t g g			2400
	T y r T h r A s p G l u G l u A s n A s p M e t M e t L e u V a l G l y A s p A s p P r o T r p			
	785	790	795	800
	c a g g a g t t t t g t t g c a t g g t c g c a a a a t c t t c a t a t a c a c g a a a g a g			2448
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	g a a g t g a g g a a g a t g a a c c c g g g a c t t a a g c t g t a g g a g c g a g g a a			2496
	G l u V a l A r g L y s M e t A s n P r o G l y T h r L e u S e r C y s A r g S e r G l u G l u			
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	G l u A l a V a l V a l G l y G l u G l y S e r A s p A l a L y s A s p A l a L y s S e r A l a			
	835	840	845	
	t c a a a t c c t t c a t t g t c c a g c g c t g g g a a c t c t t a a			2580
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Gln Ala Ala Glu Gln Gln Met Pro Leu Tyr Asp Leu Pro Ser Lys Leu
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Leu Cys Arg Val Ile Asn Val Asp Leu Lys Ala Glu Ala Asp Thr Asp
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130 135 140

Asn Ala Ile Glu Lys Glu Ala Pro Leu Pro Pro Pro Arg Phe Gln
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Thr Ala Trp His Ala Ile Ser Thr Gly Thr Met Phe Thr Val Tyr Tyr						
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Lys Pro Arg Thr Ser Pro Ser Glu Phe Ile Val Pro Phe Asp Gln Tyr						
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Met Glu Ser Val Lys Asn Asn Tyr Ser Ile Gly Met Arg Phe Lys Met						
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Val Gly Ile Glu Glu Ser Asp Pro Thr Arg Trp Pro Lys Ser Lys Trp						
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485 490 495

Asn Trp Met Ser Ser Ala Arg His Glu Pro Thr Tyr Thr Asp Leu Leu
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Ser Gly Phe Gly Thr Asn Ile Asp Pro Ser His Gly Gln Arg Ile Pro
515 520 525

Phe Tyr Asp His Ser Ser Ser Pro Ser Met Pro Ala Lys Arg Ile Leu
530 535 540

Ser Asp Ser Glu Gly Lys Phe Asp Tyr Leu Ala Asn Gln Trp Gln Met
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Ile His Ser Gly Leu Ser Leu Lys Leu His Glu Ser Pro Lys Val Pro
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Glu Tyr Pro Val Leu Asn Gly Leu Ser Thr Glu Asn Ala Gly Gly Asn
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Trp Pro Ile Arg Pro Arg Ala Leu Asn Tyr Tyr Glu Glu Val Val Asn
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Ala Gln Ala Gln Ala Gln Ala Arg Glu Gln Val Thr Lys Gln Pro Phe
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Thr Ile Gln Glu Glu Thr Ala Lys Ser Arg Glu Gly Asn Cys Arg Leu
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Phe Gly Ile Pro Leu Thr Asn Asn Met Asn Gly Thr Asp Ser Thr Met
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Ser Gln Arg Asn Asn Leu Asn Asp Ala Ala Gly Leu Thr Gln Ile Ala
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Ser Pro Lys Val Gln Asp Leu Ser Asp Gln Ser Lys Gly Ser Lys Ser
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His Pro Lys Asp Ala Gln Thr Lys Thr Asn Ser Ser Arg Ser Cys Thr
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Lys Val His Lys Gln Gly Ile Ala Leu Gly Arg Ser Val Asp Leu Ser
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Lys Phe Gln Asn Tyr Glu Glu Leu Val Ala Glu Leu Asp Arg Leu Phe
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Glu Phe Asn Gly Glu Leu Met Ala Pro Lys Lys Asp Trp Leu Ile Val
770 775 780

Tyr Thr Asp Glu Glu Asn Asp Met Met Leu Val Gly Asp Asp Pro Trp
785 790 795 800

Gln Glu Phe Cys Cys Met Val Arg Lys Ile Phe Ile Tyr Thr Lys Glu
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Glu Val Arg Lys Met Asn Pro Gly Thr Leu Ser Cys Arg Ser Glu Glu
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tacgcaccct tcttttattt tcgactgttt cagcttcagg ttcttcatcg gagagagata 240

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Met Ala Asn	
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Arg Gly Gly Glu Tyr Leu Tyr Asp Glu Leu Trp Lys Leu Cys Ala Gly	
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Pro Leu Val Asp Val Pro Gln Ala Gln Glu Arg Val Tyr Tyr Phe Pro	
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Phe Ser Lys Val Leu Thr Ala Ser Asp Thr Ser Thr His Gly Gly Phe	
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Ser Val Leu Arg Lys His Ala Thr Glu Cys Leu Pro Pro Leu Asp Met	
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Thr Gln Gln Thr Pro Thr Gln Glu Leu Val Ala Glu Asp Val His Gly	
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Tyr Gln Trp Lys Phe Lys His Ile Phe Arg Gly Gln Pro Arg Arg His	
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Leu Leu Thr Thr Gly Trp Ser Thr Phe Val Thr Ser Lys Arg Leu Val	
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Ala Gly Asp Thr Phe Val Phe Leu Arg Gly Glu Asn Gly Glu Leu Arg	
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Thr Ser Gln Phe Ile Ile Ser Leu Asn Lys Tyr Leu Glu Ala Met Ser	
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Gln Cys His Arg Asp Ala Asn Glu Asp Ala Lys Lys Ser Asp Trp Leu	
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440	445	450	
aat tat aga tta ttt gga att gat	ctg atg agt tcc tcc cta gcg gtt		1688
Asn Tyr Arg Leu Phe Gly Ile Asp	Leu Met Ser Ser Ser Leu Ala Val		
455	460	465	
cct gag gag aaa act gca ccc atg	cga cca atc aac ata tcc aaa ccg		1736
Pro Glu Glu Lys Thr Ala Pro Met	Arg Pro Ile Asn Ile Ser Lys Pro		
470	475	480	
act atg gac agc cac tca gac cca	aaa tca gag att tca aaa gta tca		1784
Thr Met Asp Ser His Ser Asp Pro	Lys Ser Glu Ile Ser Lys Val Ser		
485	490	495	
gaa gag aaa aag cag gaa cct gcg	gag gga tca cca aaa gag gtc caa		1832
Glu Glu Lys Lys Gln Glu Pro Ala	Glu Gly Ser Pro Lys Glu Val Gln		
500	505	510	515
agc aag caa agc agt tct aca aga	agc cgt acc aag gtg cag atg caa		1880
Ser Lys Gln Ser Ser Ser Thr Arg	Ser Arg Thr Lys Val Gln Met Gln		
520	525	530	
ggc gta cct gtg ggc agg gct gtg	gat tta aat gcg cta aag ggg tac		1928
Gly Val Pro Val Gly Arg Ala Val	Asp Leu Asn Ala Leu Lys Gly Tyr		
535	540	545	
aac gag ctc ata gat gac att gag	aag ctg ttt gac ata aaa ggg gaa		1976
Asn Glu Leu Ile Asp Asp Ile Glu	Lys Leu Phe Asp Ile Lys Gly Glu		
550	555	560	
ctg cgg agt cgc aat caa tgg gaa	ata gtg ttc aca gac gat gag gga		2024
Leu Arg Ser Arg Asn Gln Trp Glu	Ile Val Phe Thr Asp Asp Glu Gly		
565	570	575	
gat atg atg ctt gtc ggt gat gac	cca tgg cct gag ttc tgc aac atg		2072
Asp Met Met Leu Val Gly Asp Asp	Pro Trp Pro Glu Phe Cys Asn Met		
580	585	590	595
gtg aag aga ata ttc ata tgg tcg	aaa gag gaa gtg aag aaa atg acg		2120
Val Lys Arg Ile Phe Ile Trp Ser	Glu Glu Val Lys Lys Met Thr		
600	605	610	
cct ggg aac caa ctc cgg atg ctg	tta agg gaa gtt gaa aca aca cta		2168
Pro Gly Asn Gln Leu Arg Met Leu	Leu Arg Glu Val Glu Thr Thr Leu		
615	620	625	
aca aca act tcc aaa aca gat aat	cat tcc aac taa tttttattot		2214
Thr Thr Thr Ser Lys Thr Asp Asn	His Ser Asn		
630	635		
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tgctctgtgtt ttgttgcg			2292

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 20 25 30
 Tyr Phe Pro Gln Gly His Met Glu Gln Leu Glu Ala Ser Thr Gln Gln
 35 40 45
 Val Asp Leu Asn Thr Met Lys Pro Leu Phe Val Leu Pro Pro Lys Ile
 50 55 60
 Leu Cys Asn Val Met Asn Val Ser Leu Gln Ala Glu Lys Asp Thr Asp
 65 70 75 80
 Glu Val Tyr Ala Gln Ile Thr Leu Ile Pro Val Gly Thr Glu Val Asp
 85 90 95
 Glu Pro Met Ser Pro Asp Pro Ser Pro Pro Glu Leu Gln Arg Pro Lys
 100 105 110
 Val His Ser Phe Ser Lys Val Leu Thr Ala Ser Asp Thr Ser Thr His
 115 120 125
 Gly Gly Phe Ser Val Leu Arg Lys His Ala Thr Glu Cys Leu Pro Pro
 130 135 140
 Leu Asp Met Thr Gln Gln Thr Pro Thr Gln Glu Leu Val Ala Glu Asp
 145 150 155 160
 Val His Gly Tyr Gln Trp Lys Phe Lys His Ile Phe Arg Gly Gln Pro
 165 170 175
 Arg Arg His Leu Leu Thr Thr Gly Trp Ser Thr Phe Val Thr Ser Lys
 180 185 190
 Arg Leu Val Ala Gly Asp Thr Phe Val Phe Leu Arg Gly Glu Asn Gly
 195 200 205
 Glu Leu Arg Val Gly Val Arg Arg Ala Asn Leu Gln Gln Ser Ser Met
 210 215 220
 Pro Ser Ser Val Ile Ser Ser His Ser Met His Leu Gly Val Leu Ala

225		230		235		240
Thr Ala Arg His Ala Thr Gln Thr Lys Thr Met Phe Ile Val Tyr Tyr						
	245			250		255
Lys Pro Arg Thr Ser Gln Phe Ile Ile Ser Leu Asn Lys Tyr Leu Glu						
	260			265		270
Ala Met Ser Asn Lys Phe Ser Val Gly Met Arg Phe Lys Met Arg Phe						
	275			280		285
Glu Gly Glu Asp Ser Pro Glu Arg Arg Tyr Ser Gly Thr Val Ile Gly						
	290			295		300
Val Lys Asp Cys Ser Pro His Trp Lys Asp Ser Lys Trp Arg Cys Leu						
	305			310		315
Glu Val His Trp Asp Glu Pro Ala Ser Ile Ser Arg Pro Asn Lys Val						
				325		330
Ser Pro Trp Glu Ile Glu Pro Phe Val Asn Ser Glu Asn Val Pro Lys						
				340		345
Ser Val Met Leu Lys Asn Lys Arg Pro Arg Gln Val Ser Glu Val Ser						
				355		360
Ala Leu Asp Val Gly Ile Thr Ala Ser Asn Leu Trp Ser Ser Val Leu						
				370		375
Thr Gln Pro His Glu Phe Ala Gln Ser Cys Ile Thr Ser Gln Trp Ser						
				385		390
Ser Pro Gln Gln Cys His Arg Asp Ala Asn Glu Asp Ala Lys Lys Ser						
				405		410
Asp Trp Leu Asn Asn Ser Tyr Ser Val Ser Asn Val Ala Lys Asp Ser						
				420		425
Thr Leu Asn Asp Gln Met Val Ser Pro Val Glu Gln Lys Lys Pro Glu						
				435		440
Thr Thr Ala Asn Tyr Arg Leu Phe Gly Ile Asp Leu Met Ser Ser Ser						
				450		455

Leu Ala Val Pro Glu Glu Lys Thr Ala Pro Met Arg Pro Ile Asn Ile
465 470 475 480

Ser Lys Pro Thr Met Asp Ser His Ser Asp Pro Lys Ser Glu Ile Ser
485 490 495

Lys Val Ser Glu Glu Lys Lys Gln Glu Pro Ala Glu Gly Ser Pro Lys
500 505 510

Glu Val Gln Ser Lys Gln Ser Ser Ser Thr Arg Ser Arg Thr Lys Val
515 520 525

Gln Met Gln Gly Val Pro Val Gly Arg Ala Val Asp Leu Asn Ala Leu
530 535 540

Lys Gly Tyr Asn Glu Leu Ile Asp Asp Ile Glu Lys Leu Phe Asp Ile
545 550 555 560

Lys Gly Glu Leu Arg Ser Arg Asn Gln Trp Glu Ile Val Phe Thr Asp
565 570 575

Asp Glu Gly Asp Met Met Leu Val Gly Asp Asp Pro Trp Pro Glu Phe
580 585 590

Cys Asn Met Val Lys Arg Ile Phe Ile Trp Ser Lys Glu Glu Val Lys
595 600 605

Lys Met Thr Pro Gly Asn Gln Leu Arg Met Leu Leu Arg Glu Val Glu
610 615 620

Thr Thr Leu Thr Thr Thr Ser Lys Thr Asp Asn His Ser Asn
625 630 635

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cctcaagcta agattctggt tttgtgagtt gagtggatga gaagaggaga gattaactaa 120
attagggttt caattgttta ctttttgttt gctttttata tcaagta atg gat cag 176
Met Asp Gln
1

gtc tct cgc tct ctt cct cca cct ttt ctc tca aga gat ctc cat ctt	224
Val Ser Arg Ser Leu Pro Pro Phe Leu Ser Arg Asp Leu His Leu	
5 10 15	
cac cca cac cat caa ttc cag cat cag cag cag cag caa cag aat	272
His Pro His His Gln Phe Gln His Gln Gln Gln Gln Gln Asn	
20 25 30 35	
cac ggc cac gat ata gac cag cac cga atc ggt ggg cta aaa cgt gac	320
His Gly His Asp Ile Asp Gln His Arg Ile Gly Gly Leu Lys Arg Asp	
40 45 50	
cga gat gct gat atc gat ccc aac gag cac tct tca gcc gga aaa gat	368
Arg Asp Ala Asp Ile Asp Pro Asn Glu His Ser Ser Ala Gly Lys Asp	
55 60 65	
caa agt act cct ggc tcc ggt gga gaa agc ggc ggc gga gga gga gga	416
Gln Ser Thr Pro Gly Ser Gly Gly Glu Ser Gly Gly Gly Gly Gly	
70 75 80	
gat aat cac atc acg aga agg cca cgt ggc aga cca gcg gga tct aag	464
Asp Asn His Ile Thr Arg Arg Pro Arg Gly Arg Pro Ala Gly Ser Lys	
85 90 95	
aac aaa cca aaa ccg cca atc atc atc act cga gac agc gca aac gct	512
Asn Lys Pro Lys Pro Pro Ile Ile Ile Thr Arg Asp Ser Ala Asn Ala	
100 105 110 115	
ctc aaa tct cat gtc atg gaa gta gca aac gga tgt gac gtc atg gaa	560
Leu Lys Ser His Val Met Glu Val Ala Asn Gly Cys Asp Val Met Glu	
120 125 130	
agt gtc acc gtc ttc gct cgc cgt cgc caa cgt ggc atc tgc gtt ttg	608
Ser Val Thr Val Phe Ala Arg Arg Arg Gln Arg Gly Ile Cys Val Leu	
135 140 145	
agc gga aac ggc gcc gtt acc aac gtt acc ata aga caa cca gct tca	656
Ser Gly Asn Gly Ala Val Thr Asn Val Thr Ile Arg Gln Pro Ala Ser	
150 155 160	
gta cct ggt ggt ggc tca tct gtc gtt aac tta cac gga cgt ttc gag	704
Val Pro Gly Gly Gly Ser Ser Val Val Asn Leu His Gly Arg Phe Glu	
165 170 175	
att ctt tct ctc tgc gga tca ttc ctt cct cct ccg gct cca cca gct	752
Ile Leu Ser Leu Ser Gly Ser Phe Leu Pro Pro Pro Ala Pro Ala	
180 185 190 195	
gcg tca ggt cta acg att tac tta gcc ggt ggt cag gga cag gtt gtt	800
Ala Ser Gly Leu Thr Ile Tyr Leu Ala Gly Gly Gln Gly Gln Val Val	
200 205 210	
gga gga agc gtg gtt ggt cca ctc atg gct tca gga cct gta gtg att	848
Gly Gly Ser Val Val Gly Pro Leu Met Ala Ser Gly Pro Val Val Ile	
215 220 225	

atg gca gct tcg ttt gga aac gct gcg tat gag aga ctg ccg ttg gag 896
 Met Ala Ala Ser Phe Gly Asn Ala Ala Tyr Glu Arg Leu Pro Leu Glu
 230 235 240

gaa gac gat caa gaa gag caa aca gct gga gcg gtt gct aat aat atc 944
 Glu Asp Asp Gln Glu Glu Gln Thr Ala Gly Ala Val Ala Asn Asn Ile
 245 250 255

gat gga aac gca aca atg ggt ggt gga acg caa acg caa act cag acg 992
 Asp Gly Asn Ala Thr Met Gly Gly Gly Thr Gln Thr Gln Thr
 260 265 270

cag cag caa cag caa caa cag ttg atg caa gat ccg acg tcg ttt ata 1040
 Gln Gln Gln Gln Gln Gln Gln Leu Met Gln Asp Pro Thr Ser Phe Ile
 280 285 290

caa ggg ttg cct ccg aat ctt atg aat tct gtt caa ttg cca gct gaa 1088
 Gln Gly Leu Pro Pro Asn Leu Met Asn Ser Val Gln Leu Pro Ala Glu
 295 300 305

gct tat tgg gga act ccg aga cca tct ttc taa atcgccaaga aaaaacaagt 1141
 Ala Tyr Trp Gly Thr Pro Arg Pro Ser Phe
 310 315

tagatacgtt cggtgttttt aatttataat ctctcttctg tcaagtttta attttctttt 1201

tcttcttctt tgttttctaa agataattgt agtctttgac gaagattcgt ggtacgtatg 1261

aatcgaagag aatcgttttg gtcatgggat tgctcgatct attaggtttg agaggggggt 1321

tgtgttttgc gttgactagc agattataaa attgttgatt ttcgagtttt tattttcatg 1381

tgttggtgat aaa 1394

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Met Asp Gln Val Ser Arg Ser Leu Pro Pro Pro Phe Leu Ser Arg Asp
 1 5 10 15

Leu His Leu His Pro His His Gln Phe Gln His Gln Gln Gln Gln
 20 25 30

Gln Gln Asn His Gly His Asp Ile Asp Gln His Arg Ile Gly Gly Leu
 35 40 45

Lys Arg Asp Arg Asp Ala Asp Ile Asp Pro Asn Glu His Ser Ser Ala
 50 55 60

Gly Lys Asp Gln Ser Thr Pro Gly Ser Gly Gly Glu Ser Gly Gly Gly
 65 70 75 80

Gly Gly Gly Asp Asn His Ile Thr Arg Arg Pro Arg Gly Arg Pro Ala
85 90 95

Gly Ser Lys Asn Lys Pro Lys Pro Pro Ile Ile Ile Thr Arg Asp Ser
100 105 110

Ala Asn Ala Leu Lys Ser His Val Met Glu Val Ala Asn Gly Cys Asp
115 120 125

Val Met Glu Ser Val Thr Val Phe Ala Arg Arg Arg Gln Arg Gly Ile
130 135 140

Cys Val Leu Ser Gly Asn Gly Ala Val Thr Asn Val Thr Ile Arg Gln
145 150 155 160

Pro Ala Ser Val Pro Gly Gly Gly Ser Ser Val Val Asn Leu His Gly
165 170 175

Arg Phe Glu Ile Leu Ser Leu Ser Gly Ser Phe Leu Pro Pro Pro Ala
180 185 190

Pro Pro Ala Ala Ser Gly Leu Thr Ile Tyr Leu Ala Gly Gly Gln Gly
195 200 205

Gln Val Val Gly Gly Ser Val Val Gly Pro Leu Met Ala Ser Gly Pro
210 215 220

Val Val Ile Met Ala Ala Ser Phe Gly Asn Ala Ala Tyr Glu Arg Leu
225 230 235 240

Pro Leu Glu Glu Asp Asp Gln Glu Glu Gln Thr Ala Gly Ala Val Ala
245 250 255

Asn Asn Ile Asp Gly Asn Ala Thr Met Gly Gly Gly Thr Gln Thr Gln
260 265 270

Thr Gln Thr Gln Gln Gln Gln Gln Gln Leu Met Gln Asp Pro Thr
275 280 285

Ser Phe Ile Gln Gly Leu Pro Pro Asn Leu Met Asn Ser Val Gln Leu
290 295 300

Pro Ala Glu Ala Tyr Trp Gly Thr Pro Arg Pro Ser Phe

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 tatgcataat tgagag atg gtg gtc aaa agg aag tta aat tgt ggt ggc tct 172
 Met Val Val Lys Arg Lys Leu Asn Cys Gly Gly Ser
 1 5 10
 gat ggt ttt gat ttc ccc aat att ccc aag gct cct cgt tca agc agg 220
 Asp Gly Phe Asp Phe Pro Asn Ile Pro Lys Ala Pro Arg Ser Ser Arg
 15 20 25
 agg aag gtc tca ggt aag aga tct gat gat gaa agt gag atc tgt gca 268
 Arg Lys Val Ser Gly Lys Arg Ser Asp Asp Glu Ser Glu Ile Cys Ala
 30 35 40
 att gat ttg cta gct tct ctt gct gga aag ttg ttg gaa gaa agt gaa 316
 Ile Asp Leu Leu Ala Ser Leu Ala Gly Lys Leu Leu Glu Glu Ser Glu
 45 50 55 60
 agt tcc tca acg tct acc tat gca tct gaa gct gat aat ctt gat cat 364
 Ser Ser Ser Thr Ser Thr Tyr Ala Ser Glu Ala Asp Asn Leu Asp His
 65 70 75
 ttg ggt gga ctg att aag caa gaa ctt gaa gat ggc tat act act aag 412
 Leu Gly Gly Leu Ile Lys Gln Glu Leu Glu Asp Gly Tyr Thr Thr Lys
 80 85 90
 cct tgt aaa tcc gag ttt ttc gat cca gga aac cct gct tca aag tcc 460
 Pro Cys Lys Ser Glu Phe Phe Asp Pro Gly Asn Pro Ala Ser Lys Ser
 95 100 105
 act agt gaa aat act agc gtg act tgt ttg cca ttt tcg tct ttc gaa 508
 Thr Ser Glu Asn Thr Ser Val Thr Cys Leu Pro Phe Ser Ser Phe Glu
 110 115 120
 aat gat tgc att ttg gag caa aca ccg gtt tct gat tgt aag agg gca 556
 Asn Asp Cys Ile Leu Glu Gln Thr Pro Val Ser Asp Cys Lys Arg Ala
 125 130 135 140
 tct ggt ttg aag tcc ctg gta ggg agc atc act gag gag aca tgt gtt 604
 Ser Gly Leu Lys Ser Leu Val Gly Ser Ile Thr Glu Glu Thr Cys Val
 145 150 155
 gtt aat gag gat gcc gga tct gaa caa ggt gct aat act ttc agc tta 652
 Val Asn Glu Asp Ala Gly Ser Glu Gln Gly Ala Asn Thr Phe Ser Leu
 160 165 170
 aag gat cca agt caa tta cat tcg cag tct cca gaa tcg gtc ctt ctg 700
 Lys Asp Pro Ser Gln Leu His Ser Gln Ser Pro Glu Ser Val Leu Leu

175	180	185	
gat ggc gat gtg aaa tta gca cca tgc acg gat caa gtc cct aat gat Asp Gly Asp Val Lys Leu Ala Pro Cys Thr Asp Gln Val Pro Asn Asp 190 195 200			748
tct ttt aaa gga tat agg aat cat tct aag tta gtt tgc aga gat gat Ser Phe Lys Gly Tyr Arg Asn His Ser Lys Leu Val Cys Arg Asp Asp 205 210 215 220			796
gac gaa aac tat tgt aag tat tat aaa ttt agt gac aaa tgt aag tca Asp Glu Asn Tyr Cys Lys Tyr Tyr Lys Phe Ser Asp Lys Cys Lys Ser 225 230 235			844
tat agg cct ctc tcc cgg gtt ggc aat aga aga ata atg cag tcg gtg Tyr Arg Pro Leu Ser Arg Val Gly Asn Arg Arg Ile Met Gln Ser Val 240 245 250			892
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cgt ttg aag gct ctc tac cgc aag aga aaa tta tgt tat ggt tac aac Arg Leu Lys Ala Leu Tyr Arg Lys Arg Lys Leu Cys Tyr Gly Tyr Asn 270 275 280			988
cca tgg aag cgt gag acc att cat agg aag aga aga ttg tct gac aaa Pro Trp Lys Arg Glu Thr Ile His Arg Lys Arg Arg Leu Ser Asp Lys 285 290 295 300			1036
ggt ttg gtc gta aat tat gat ggt ggg ctc agt agt gaa agt gtt tcc Gly Leu Val Val Asn Tyr Asp Gly Gly Leu Ser Ser Glu Ser Val Ser 305 310 315			1084
aat tca cct gaa aag gga gaa tca gaa aat ggt gat ttc tct gct gca Asn Ser Pro Glu Lys Gly Glu Ser Glu Asn Gly Asp Phe Ser Ala Ala 320 325 330			1132
aaa ata ggt ctt ctt tgc aaa gac tcc cgt gta aag ttc agc atc aag Lys Ile Gly Leu Leu Ser Lys Asp Ser Arg Val Lys Phe Ser Ile Lys 335 340 345			1180
tcc ctt agg att ccg gag ctt gta att gaa gtt cca gaa aca gca aca Ser Leu Arg Ile Pro Glu Leu Val Ile Glu Val Pro Glu Thr Ala Thr 350 355 360			1228
gta ggc tta ctg aag agg acg gtg aag gag gcg gtt act gct tta ctc Val Gly Leu Leu Lys Arg Thr Val Lys Glu Ala Val Thr Ala Leu Leu 365 370 375 380			1276
ggt ggt gga ata cgt att ggg gtg tta gtc caa ggg aaa aaa gtt aga Gly Gly Gly Ile Arg Ile Gly Val Leu Val Gln Gly Lys Lys Val Arg 385 390 395			1324
gat gac aac aac act cta tca cag act ggt ctt tgc tgt aga gaa aat Asp Asp Asn Asn Thr Leu Ser Gln Thr Gly Leu Ser Cys Arg Glu Asn 400 405 410			1372

ctt ggc aac ctt ggc ttc acc tta gag cct ggt ttg gaa aca ctg cct	1420
Leu Gly Asn Leu Gly Phe Thr Leu Glu Pro Gly Leu Glu Thr Leu Pro	
415 420 425	
gta cct ctt tgt tct gaa act cct gtc ctt tct ctg cca act gac tct	1468
Val Pro Leu Cys Ser Glu Thr Pro Val Leu Ser Leu Pro Thr Asp Ser	
430 435 440	
aca aag ttg tca gaa agg tcc gca gct tct cca gog tta gag act gga	1516
Thr Lys Leu Ser Glu Arg Ser Ala Ala Ser Pro Ala Leu Glu Thr Gly	
445 450 455 460	
att cct ctc cct ccc caa gat gaa gat tac ttg att aat ttg gga aat	1564
Ile Pro Leu Pro Pro Gln Asp Glu Asp Tyr Leu Ile Asn Leu Gly Asn	
465 470 475	
agt gtg gag aac aat gat gaa tta gtc cca cat ctg agt gac ata cca	1612
Ser Val Glu Asn Asn Asp Glu Leu Val Pro His Leu Ser Asp Ile Pro	
480 485 490	
gct gat gaa caa cct tca tca gat tca aga gcg ctg gtt cca gtt ttg	1660
Ala Asp Glu Gln Pro Ser Ser Asp Ser Arg Ala Leu Val Pro Val Leu	
495 500 505	
gcc ttg gag tcc gac gct ctt gca ctt gtt cca gtt aac gag aaa cct	1708
Ala Leu Glu Ser Asp Ala Leu Ala Leu Val Pro Val Asn Glu Lys Pro	
510 515 520	
aag cgt aca gag ctt tca caa cgc aga acc agg aga cca ttc tct gtt	1756
Lys Arg Thr Glu Leu Ser Gln Arg Arg Thr Arg Arg Pro Phe Ser Val	
525 530 535 540	
aca gag gta gaa gct cta gta agc gca gtt gaa gaa gtt ggg act gga	1804
Thr Glu Val Glu Ala Leu Val Ser Ala Val Glu Glu Val Gly Thr Gly	
545 550 555	
aga tgg cgt gat gtg aag ttg cgt tct ttt gag aat gca agt cat cga	1852
Arg Trp Arg Asp Val Lys Leu Arg Ser Phe Glu Asn Ala Ser His Arg	
560 565 570	
acc tat gtg gac ttg aag gac aaa tgg aaa acg ttg gtt cac aca gca	1900
Thr Tyr Val Asp Leu Lys Asp Lys Trp Lys Thr Leu Val His Thr Ala	
575 580 585	
agt ata tca cca cag caa cga aga gga gaa cca gtg cct caa gaa ctg	1948
Ser Ile Ser Pro Gln Gln Arg Arg Gly Glu Pro Val Pro Gln Glu Leu	
590 595 600	
cta gac aga gtc tta gga gca cat agg tac tgg aca cag cac caa atg	1996
Leu Asp Arg Val Leu Gly Ala His Arg Tyr Trp Thr Gln His Gln Met	
605 610 615 620	
aaa cag aac ggg aaa cat cag gtg gct aca aca atg gtg gtt gaa gca	2044
Lys Gln Asn Gly Lys His Gln Val Ala Thr Thr Met Val Val Glu Ala	
625 630 635	

ggt tgc tcc atg taa agaaggagaa tggtaataac aataactttc acttgacgac 2099
Gly Ser Ser Met
640

taaggaacca aagtgggcaa ctgtacaaaag ggaaacaaca aaatacagaa acataacttaa 2159

tttctgaaaa gaagagtcta tattttttatt ttttttaaat catagccggg agaacaaga 2219

cggtccttga cacttttggg tactttttatg gtaggtctgt tcattccaaa tttctaattg 2279

atttgattat gtaatttggg ggtaggacca tg 2311

<210> 384 <211> 640 <212> PRT <213> Arabidopsis thaliana <400> 384

Met Val Val Lys Arg Lys Leu Asn Cys Gly Gly Ser Asp Gly Phe Asp
1 5 10 15

Phe Pro Asn Ile Pro Lys Ala Pro Arg Ser Ser Arg Arg Lys Val Ser
20 25 30

Gly Lys Arg Ser Asp Asp Glu Ser Glu Ile Cys Ala Ile Asp Leu Leu
35 40 45

Ala Ser Leu Ala Gly Lys Leu Leu Glu Glu Ser Glu Ser Ser Ser Thr
50 55 60

Ser Thr Tyr Ala Ser Glu Ala Asp Asn Leu Asp His Leu Gly Gly Leu
65 70 75 80

Ile Lys Gln Glu Leu Glu Asp Gly Tyr Thr Thr Lys Pro Cys Lys Ser
85 90 95

Glu Phe Phe Asp Pro Gly Asn Pro Ala Ser Lys Ser Thr Ser Glu Asn
100 105 110

Thr Ser Val Thr Cys Leu Pro Phe Ser Ser Phe Glu Asn Asp Cys Ile
115 120 125

Leu Glu Gln Thr Pro Val Ser Asp Cys Lys Arg Ala Ser Gly Leu Lys
130 135 140

Ser Leu Val Gly Ser Ile Thr Glu Glu Thr Cys Val Val Asn Glu Asp
145 150 155 160

Ala Gly Ser Glu Gln Gly Ala Asn Thr Phe Ser Leu Lys Asp Pro Ser
165 170 175

Gln Leu His Ser Gln Ser Pro Glu Ser Val Leu Leu Asp Gly Asp Val
 180 185 190

Lys Leu Ala Pro Cys Thr Asp Gln Val Pro Asn Asp Ser Phe Lys Gly
 195 200 205

Tyr Arg Asn His Ser Lys Leu Val Cys Arg Asp Asp Asp Glu Asn Tyr
 210 215 220

Cys Lys Tyr Tyr Lys Phe Ser Asp Lys Cys Lys Ser Tyr Arg Pro Leu
 225 230 235 240

Ser Arg Val Gly Asn Arg Arg Ile Met Gln Ser Val Arg Ala Ile Ser
 245 250 255

Lys Leu Lys Cys Phe Glu Asp Thr Arg Thr Asp Gly Arg Leu Lys Ala
 260 265 270

Leu Tyr Arg Lys Arg Lys Leu Cys Tyr Gly Tyr Asn Pro Trp Lys Arg
 275 280 285

Glu Thr Ile His Arg Lys Arg Arg Leu Ser Asp Lys Gly Leu Val Val
 290 295 300

Asn Tyr Asp Gly Gly Leu Ser Ser Glu Ser Val Ser Asn Ser Pro Glu
 305 310 315 320

Lys Gly Glu Ser Glu Asn Gly Asp Phe Ser Ala Ala Lys Ile Gly Leu
 325 330 335

Leu Ser Lys Asp Ser Arg Val Lys Phe Ser Ile Lys Ser Leu Arg Ile
 340 345 350

Pro Glu Leu Val Ile Glu Val Pro Glu Thr Ala Thr Val Gly Leu Leu
 355 360 365

Lys Arg Thr Val Lys Glu Ala Val Thr Ala Leu Leu Gly Gly Gly Ile
 370 375 380

Arg Ile Gly Val Leu Val Gln Gly Lys Lys Val Arg Asp Asp Asn Asn
 385 390 395 400

Thr Leu Ser Gln Thr Gly Leu Ser Cys Arg Glu Asn Leu Gly Asn Leu
405 410 415

Gly Phe Thr Leu Glu Pro Gly Leu Glu Thr Leu Pro Val Pro Leu Cys
420 425 430

Ser Glu Thr Pro Val Leu Ser Leu Pro Thr Asp Ser Thr Lys Leu Ser
435 440 445

Glu Arg Ser Ala Ala Ser Pro Ala Leu Glu Thr Gly Ile Pro Leu Pro
450 455 460

Pro Gln Asp Glu Asp Tyr Leu Ile Asn Leu Gly Asn Ser Val Glu Asn
465 470 475 480

Asn Asp Glu Leu Val Pro His Leu Ser Asp Ile Pro Ala Asp Glu Gln
485 490 495

Pro Ser Ser Asp Ser Arg Ala Leu Val Pro Val Leu Ala Leu Glu Ser
500 505 510

Asp Ala Leu Ala Leu Val Pro Val Asn Glu Lys Pro Lys Arg Thr Glu
515 520 525

Leu Ser Gln Arg Arg Thr Arg Arg Pro Phe Ser Val Thr Glu Val Glu
530 535 540

Ala Leu Val Ser Ala Val Glu Glu Val Gly Thr Gly Arg Trp Arg Asp
545 550 555 560

Val Lys Leu Arg Ser Phe Glu Asn Ala Ser His Arg Thr Tyr Val Asp
565 570 575

Leu Lys Asp Lys Trp Lys Thr Leu Val His Thr Ala Ser Ile Ser Pro
580 585 590

Gln Gln Arg Arg Gly Glu Pro Val Pro Gln Glu Leu Leu Asp Arg Val
595 600 605

Leu Gly Ala His Arg Tyr Trp Thr Gln His Gln Met Lys Gln Asn Gly
610 615 620

Lys His Gln Val Ala Thr Thr Met Val Val Glu Ala Gly Ser Ser Met
625 630 635 640

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<222> (59)..(1141) <223> G617

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atg aga tca gga gaa tgt gat gaa gag gag att caa gca aag caa gaa 106
Met Arg Ser Gly Glu Cys Asp Glu Glu Glu Ile Gln Ala Lys Gln Glu
1 5 10 15

aga gat caa aat caa aat cat caa gta aac tta aac cac atg ttg caa 154
Arg Asp Gln Asn Gln Asn His Gln Val Asn Leu Asn His Met Leu Gln
20 25 30

caa caa cag ccg agt tcg gta tca tct tca agg caa tgg act tca gct 202
Gln Gln Gln Gln Pro Ser Ser Val Ser Ser Arg Gln Thr Ser Ala
35 40 45

ttt agg aat cca aga atc gtt cga gtc tca aga aca ttc ggt ggc aaa 250
Phe Arg Asn Pro Arg Ile Val Arg Val Ser Arg Thr Phe Gly Gly Lys
50 55 60

gac aga cac agc aaa gta tgt aca gtc cgt ggt ctt cga gac cgg agg 298
Asp Arg His Ser Lys Val Cys Thr Val Arg Gly Leu Arg Asp Arg Arg
65 70 75 80

ata agg ttg tcc gta cct aca gct att caa ctc tac gac ctt caa gat 346
Ile Arg Leu Ser Val Pro Thr Ala Ile Gln Leu Tyr Asp Leu Gln Asp
85 90 95

cga tta ggg ctg agt cag cca agc aaa gtc att gat tgg tta ctc gaa 394
Arg Leu Gly Leu Ser Gln Pro Ser Lys Val Ile Asp Trp Leu Leu Glu
100 105 110

gca gca aaa gat gac gta gac aag cta cct cct cta caa ttc cca cat 442
Ala Ala Lys Asp Asp Val Asp Lys Leu Pro Pro Leu Gln Phe Pro His
115 120 125

gga ttt aac cag atg tat cca aat ctc atc ttc gga aac tcc ggg ttt 490
Gly Phe Asn Gln Met Tyr Pro Asn Leu Ile Phe Gly Asn Ser Gly Phe
130 135 140

gga gaa tct cca tct tca act aca tca aca acg ttt cca gga acc aat 538
Gly Glu Ser Pro Ser Ser Thr Thr Ser Thr Thr Phe Pro Gly Thr Asn
145 150 155 160

ctc ggg ttc ttg gaa aat tgg gat ctt ggt ggt tct tca aga aca aga 586
Leu Gly Phe Leu Glu Asn Trp Asp Leu Gly Gly Ser Ser Arg Thr Arg
165 170 175

gca aga tta acc gat aca act acg acc caa aga gaa agt ttt gat ctt 634
Ala Arg Leu Thr Asp Thr Thr Thr Thr Gln Arg Glu Ser Phe Asp Leu
180 185 190

gat aaa gga aaa tgg atc aaa aac gac gag aat agt aat caa gat cat 682
 Asp Lys Gly Lys Trp Ile Lys Asn Asp Glu Asn Ser Asn Gln Asp His
 195 200 205

caa ggg ttt aac acc aat cat caa caa caa ttt cct ctg acc aat ccg 730
 Gln Gly Phe Asn Thr Asn His Gln Gln Gln Phe Pro Leu Thr Asn Pro
 210 215 220

tac aac aac act toa gct tat tac aac ctt gga cat ctt caa caa tgc 778
 Tyr Asn Asn Thr Ser Ala Tyr Tyr Asn Leu Gly His Leu Gln Gln Ser
 225 230 235 240

tta gac caa tct ggt aat aac gtt act gtc gca ata tct aat gtt gct 826
 Leu Asp Gln Ser Gly Asn Asn Val Thr Val Ala Ile Ser Asn Val Ala
 245 250 255

gct aat aat aac aat aat ctc aat ttg cat cct cct tcc tgc tct gcc 874
 Ala Asn Asn Asn Asn Asn Leu Asn Leu His Pro Pro Ser Ser Ser Ala
 260 265 270

gga gat gga tct cag ctt ttt ttc ggt cct act cct ccg gca atg agc 922
 Gly Asp Gly Ser Gln Leu Phe Phe Gly Pro Thr Pro Pro Ala Met Ser
 275 280 285

tct cta ttc ccg aca tac cct tgc ttt ctt gga gct tct cat cat cat 970
 Ser Leu Phe Pro Thr Tyr Pro Ser Phe Leu Gly Ala Ser His His His
 290 295 300

cat gtc gtc gat gga gcc ggt cat ctt cag ctc ttt agc tgc aat tca 1018
 His Val Val Asp Gly Ala Gly His Leu Gln Leu Phe Ser Ser Asn Ser
 305 310 315 320

aat acc gca tgc cag caa cac atg atg ccg ggt aat acg agt ttg att 1066
 Asn Thr Ala Ser Gln Gln His Met Met Pro Gly Asn Thr Ser Leu Ile
 325 330 335

aga cca ttt cat cat ttg atg agc tgc aat cat gat acg gat cat cat 1114
 Arg Pro Phe His His Leu Met Ser Ser Asn His Asp Thr Asp His His
 340 345 350

agt agc gat aat gaa tca gat tct tga atgattttat atatctacac 1161
 Ser Ser Asp Asn Glu Ser Asp Ser
 355 360

tatacattga aaatgttata tgtatacgta ttcttctata ttttgatata tatgcgtatt 1221

gttgattgg tttatgtatc t 1242

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 1 5 10 15

Arg Asp Gln Asn Gln Asn His Gln Val Asn Leu Asn His Met Leu Gln

20

25

30

Gln Gln Gln Pro Ser Ser Val Ser Ser Ser Arg Gln Trp Thr Ser Ala
35 40 45

Phe Arg Asn Pro Arg Ile Val Arg Val Ser Arg Thr Phe Gly Gly Lys
50 55 60

Asp Arg His Ser Lys Val Cys Thr Val Arg Gly Leu Arg Asp Arg Arg
65 70 75 80

Ile Arg Leu Ser Val Pro Thr Ala Ile Gln Leu Tyr Asp Leu Gln Asp
85 90 95

Arg Leu Gly Leu Ser Gln Pro Ser Lys Val Ile Asp Trp Leu Leu Glu
100 105 110

Ala Ala Lys Asp Asp Val Asp Lys Leu Pro Pro Leu Gln Phe Pro His
115 120 125

Gly Phe Asn Gln Met Tyr Pro Asn Leu Ile Phe Gly Asn Ser Gly Phe
130 135 140

Gly Glu Ser Pro Ser Ser Thr Thr Ser Thr Thr Phe Pro Gly Thr Asn
145 150 155 160

Leu Gly Phe Leu Glu Asn Trp Asp Leu Gly Gly Ser Ser Arg Thr Arg
165 170 175

Ala Arg Leu Thr Asp Thr Thr Thr Thr Gln Arg Glu Ser Phe Asp Leu
180 185 190

Asp Lys Gly Lys Trp Ile Lys Asn Asp Glu Asn Ser Asn Gln Asp His
195 200 205

Gln Gly Phe Asn Thr Asn His Gln Gln Gln Phe Pro Leu Thr Asn Pro
210 215 220

Tyr Asn Asn Thr Ser Ala Tyr Tyr Asn Leu Gly His Leu Gln Gln Ser
225 230 235 240

Leu Asp Gln Ser Gly Asn Asn Val Thr Val Ala Ile Ser Asn Val Ala
245 250 255

Ala Asn Asn Asn Asn Asn Leu Asn Leu His Pro Pro Ser Ser Ser Ala
260 265 270

Gly Asp Gly Ser Gln Leu Phe Phe Gly Pro Thr Pro Pro Ala Met Ser
275 280 285

Ser Leu Phe Pro Thr Tyr Pro Ser Phe Leu Gly Ala Ser His His His
290 295 300

His Val Val Asp Gly Ala Gly His Leu Gln Leu Phe Ser Ser Asn Ser
305 310 315 320

Asn Thr Ala Ser Gln Gln His Met Met Pro Gly Asn Thr Ser Leu Ile
325 330 335

Arg Pro Phe His His Leu Met Ser Ser Asn His Asp Thr Asp His His
340 345 350

Ser Ser Asp Asn Glu Ser Asp Ser
355 360

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<222> (1)..(2157) <223> G644

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Met Ile Thr Glu Pro Ser Leu Thr Gly Ile Ser Gly Met Val Asn Arg
1 5 10 15

aac cgt tta tcc ggt tta ccc gat caa cct tct tcg cat agc ttc act 96
Asn Arg Leu Ser Gly Leu Pro Asp Gln Pro Ser Ser His Ser Phe Thr
20 25 30

cgg gta aca cta tac gac ggt ttc aat tac aat ctc tcc tcc gat cat 144
Pro Val Thr Leu Tyr Asp Gly Phe Asn Tyr Asn Leu Ser Ser Asp His
35 40 45

ata aac acc gtt gta gca gog cgg gag aat tca gtt ttt atc cgg gaa 192
Ile Asn Thr Val Val Ala Ala Pro Glu Asn Ser Val Phe Ile Arg Glu
50 55 60

gaa gaa gaa gaa gag gat cca gct gat gat ttc gat ttc tct gac gct 240
Glu Glu Glu Glu Glu Asp Pro Ala Asp Asp Phe Asp Phe Ser Asp Ala
65 70 75 80

gtt tta gga tac att agt cag atg ttg aat gag gaa gac atg gat gat 288
Val Leu Gly Tyr Ile Ser Gln Met Leu Asn Glu Glu Asp Met Asp Asp
85 90 95

aaa gtc tgc atg ctt caa gag tct cta gat ctc gaa gct gct gag aga	336
Lys Val Cys Met Leu Gln Glu Ser Leu Asp Leu Glu Ala Ala Glu Arg	
100 105 110	
tcg tta tac gaa gct att ggt aag aag tat cct cca tct cca gaa cga	384
Ser Leu Tyr Glu Ala Ile Gly Lys Lys Tyr Pro Pro Ser Pro Glu Arg	
115 120 125	
aac tta gct ttc gct gaa cga aac agc gag aat ctt gac cgt gtg gtt	432
Asn Leu Ala Phe Ala Glu Arg Asn Ser Glu Asn Leu Asp Arg Val Val	
130 135 140	
cca gga aac tac act gga gga gat tgt ata ggt ttt ggg aac ggt gga	480
Pro Gly Asn Tyr Thr Gly Gly Asp Cys Ile Gly Phe Gly Asn Gly Gly	
145 150 155 160	
atc aag cct ttg agt agt ggt ttt act ttg gat ttt cga aat cct cag	528
Ile Lys Pro Leu Ser Ser Gly Phe Thr Leu Asp Phe Arg Asn Pro Gln	
165 170 175	
agt tgt tct tcg att cta agt gtt cca caa tct aat ggt tta att act	576
Ser Cys Ser Ser Ile Leu Ser Val Pro Gln Ser Asn Gly Leu Ile Thr	
180 185 190	
atc tac gga gat gga att gat gaa tcg tcg aag aac aat cgg gag aat	624
Ile Tyr Gly Asp Gly Ile Asp Glu Ser Ser Lys Asn Asn Cys Glu Asn	
195 200 205	
cat caa tct gtt tgg ttg ttt agg cgt gag att gaa gaa gct aat agg	672
His Gln Ser Met Trp Leu Phe Arg Arg Glu Ile Glu Glu Ala Asn Arg	
210 215 220	
ttt aat cct gaa gaa aac gag ttg att gtg aat ttc aga gag gag aat	720
Phe Asn Pro Glu Glu Asn Glu Leu Ile Val Asn Phe Arg Glu Glu Asn	
225 230 235 240	
tgt gtg agc aaa gca agg aag aac tct agc cgt gat gag att tgt gtt	768
Cys Val Ser Lys Ala Arg Lys Asn Ser Ser Arg Asp Glu Ile Cys Val	
245 250 255	
gaa gaa gag agg agt agt aaa tta cct gca gtg ttt ggt gag gat att	816
Glu Glu Glu Arg Ser Ser Lys Leu Pro Ala Val Phe Gly Glu Asp Ile	
260 265 270	
ttg agg tca gat gtt gta gat aag atc ttg gtt cat gta cca gga gga	864
Leu Arg Ser Asp Val Val Asp Lys Ile Leu Val His Val Pro Gly Gly	
275 280 285	
gag agc atg aag gag ttt aat gcg ttg cgt gac gtt ttg aag aaa gga	912
Glu Ser Met Lys Glu Phe Asn Ala Leu Arg Asp Val Leu Lys Lys Gly	
290 295 300	
gtg gag aag aag aaa gct tca gat gct caa ggt ggg aag aga cga gcc	960
Val Glu Lys Lys Lys Ala Ser Asp Ala Gln Gly Gly Lys Arg Arg Ala	
305 310 315 320	

aga gga aga gga cgt gga aga gga aga gga gga gga gga gga caa aat	1008
Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Gly Gly Gly Gln Asn	
325 330 335	
ggg aaa aaa gaa gtt gtg gat ttg aga agt tta ttg ata cat tgt gct	1056
Gly Lys Lys Glu Val Val Asp Leu Arg Ser Leu Leu Ile His Cys Ala	
340 345 350	
caa gct gtt gca gct gat gat cgt agg tgt gca ggt cag ttg tta aaa	1104
Gln Ala Val Ala Ala Asp Asp Arg Arg Cys Ala Gly Gln Leu Leu Lys	
355 360 365	
cag ata aga ttg cat tct acg ccg ttt ggt gat ggg aat cag agg ttg	1152
Gln Ile Arg Leu His Ser Thr Pro Phe Gly Asp Gly Asn Gln Arg Leu	
370 375 380	
gct cat tgt ttt gct aat ggt ctc gag gcg agg tta gcc ggt act gga	1200
Ala His Cys Phe Ala Asn Gly Leu Glu Ala Arg Leu Ala Gly Thr Gly	
385 390 395 400	
agc cag att tac aaa ggg att gtg agt aaa ccg aga tcc gct gca gct	1248
Ser Gln Ile Tyr Lys Gly Ile Val Ser Lys Pro Arg Ser Ala Ala Ala	
405 410 415	
gtg ttg aag gct cac cag ctt ttt ctt gcg tgt tgt cct ttt aga aag	1296
Val Leu Lys Ala His Gln Leu Phe Leu Ala Cys Cys Pro Phe Arg Lys	
420 425 430	
ctc tct tat ttc ata act aat aag acg ata cgt gat ctt gtt ggg aac	1344
Leu Ser Tyr Phe Ile Thr Asn Lys Thr Ile Arg Asp Leu Val Gly Asn	
435 440 445	
tct cag cgc gtt cat gtt att gat ttt ggt att ctt tac ggt ttc caa	1392
Ser Gln Arg Val His Val Ile Asp Phe Gly Ile Leu Tyr Gly Phe Gln	
450 455 460	
tgg cca act ctt att cac cgg ttt tcg atg tat gga tca ccg aag gtt	1440
Trp Pro Thr Leu Ile His Arg Phe Ser Met Tyr Gly Ser Pro Lys Val	
465 470 475 480	
agg atc acc ggg att gag ttt ccg cag ccc ggg ttt cgt ccg gca cag	1488
Arg Ile Thr Gly Ile Glu Phe Pro Gln Pro Gly Phe Arg Pro Ala Gln	
485 490 495	
cgg gtt gaa gaa act ggt caa agg tta gca gcg tat gcc aaa ctc ttt	1536
Arg Val Glu Glu Thr Gly Gln Arg Leu Ala Ala Tyr Ala Lys Leu Phe	
500 505 510	
ggg gtg cca ttt gag tat aaa gca att gct aag aag tgg gat gca att	1584
Gly Val Pro Phe Glu Tyr Lys Ala Ile Ala Lys Lys Trp Asp Ala Ile	
515 520 525	
caa ctt gaa gat ctt gat atc gac agg gat gag att act gtt gtt aat	1632
Gln Leu Glu Asp Leu Asp Ile Asp Arg Asp Glu Ile Thr Val Val Asn	
530 535 540	
tgc ctg tac cgg gct gag aat ttg cat gat gag tca gtc aaa gta gaa	1680

Cys Leu Tyr Arg Ala Glu Asn Leu His Asp Glu Ser Val Lys Val Glu
 545 550 555 560
 agt tgt aga gac act gtt ctc aat ttg atc ggg aag atc aat cct gat 1728
 Ser Cys Arg Asp Thr Val Leu Asn Leu Ile Gly Lys Ile Asn Pro Asp
 565 570 575
 ctc ttt gtc ttt ggc att gtg aat ggt gca tac aac gca ccg ttt ttc 1776
 Leu Phe Val Phe Gly Ile Val Asn Gly Ala Tyr Asn Ala Pro Phe Phe
 580 585 590
 gta aca cgg ttt cgc gaa gct cta ttt cat ttc tcc tcg att ttt gac 1824
 Val Thr Arg Phe Arg Glu Ala Leu Phe His Phe Ser Ser Ile Phe Asp
 595 600 605
 atg ctt gag aca att gtg cca cga gaa gac gaa gag agg atg ttc ctt 1872
 Met Leu Glu Thr Ile Val Pro Arg Glu Asp Glu Arg Met Phe Leu
 610 615 620
 gag atg gag gtc ttt ggg aga gag gca ctg aat gtg att gct tgc gaa 1920
 Glu Met Glu Val Phe Gly Arg Glu Ala Leu Asn Val Ile Ala Cys Glu
 625 630 635
 ggt tgg gaa aga gtg gag agg cct gag aca tac aag cag tgg cac gta 1968
 Gly Trp Glu Arg Val Glu Arg Pro Glu Thr Tyr Lys Gln Trp His Val
 645 650 655
 cgg gct atg agg tca ggg ttg gtg cag gtt cca ttt gac cca agc att 2016
 Arg Ala Met Arg Ser Gly Leu Val Gln Val Pro Phe Asp Pro Ser Ile
 660 665 670
 atg aag aca tcg ctg cat aag gtc cac aca ttc tac cac aag gat ttt 2064
 Met Lys Thr Ser Leu His Lys Val His Thr Phe Tyr His Lys Asp Phe
 675 680 685
 gtg atc gat caa gat aac cgg tgg ctc ttg caa ggc tgg aag gga aga 2112
 Val Ile Asp Gln Asp Asn Arg Trp Leu Leu Gln Gly Trp Lys Gly Arg
 690 695 700
 act gtc atg gct ctt tct gtt tgg aaa cca gag tcc aag gct tga 2157
 Thr Val Met Ala Leu Ser Val Trp Lys Pro Glu Ser Lys Ala
 705 710 715

<210> 388 <211> 718 <212> PRT <213> Arabidopsis thaliana <400> 388

Met Ile Thr Glu Pro Ser Leu Thr Gly Ile Ser Gly Met Val Asn Arg
 1 5 10 15

Asn Arg Leu Ser Gly Leu Pro Asp Gln Pro Ser Ser His Ser Phe Thr
 20 25 30

Pro Val Thr Leu Tyr Asp Gly Phe Asn Tyr Asn Leu Ser Ser Asp His
 35 40 45

Ile Asn Thr Val Val Ala Ala Pro Glu Asn Ser Val Phe Ile Arg Glu
 50 55 60

Glu Glu Glu Glu Glu Asp Pro Ala Asp Asp Phe Asp Phe Ser Asp Ala
 65 70 75 80

Val Leu Gly Tyr Ile Ser Gln Met Leu Asn Glu Glu Asp Met Asp Asp
 85 90 95

Lys Val Cys Met Leu Gln Glu Ser Leu Asp Leu Glu Ala Ala Glu Arg
 100 105 110

Ser Leu Tyr Glu Ala Ile Gly Lys Lys Tyr Pro Pro Ser Pro Glu Arg
 115 120 125

Asn Leu Ala Phe Ala Glu Arg Asn Ser Glu Asn Leu Asp Arg Val Val
 130 135 140

Pro Gly Asn Tyr Thr Gly Gly Asp Cys Ile Gly Phe Gly Asn Gly Gly
 145 150 155 160

Ile Lys Pro Leu Ser Ser Gly Phe Thr Leu Asp Phe Arg Asn Pro Gln
 165 170 175

Ser Cys Ser Ser Ile Leu Ser Val Pro Gln Ser Asn Gly Leu Ile Thr
 180 185 190

Ile Tyr Gly Asp Gly Ile Asp Glu Ser Ser Lys Asn Asn Arg Glu Asn
 195 200 205

His Gln Ser Val Trp Leu Phe Arg Arg Glu Ile Glu Glu Ala Asn Arg
 210 215 220

Phe Asn Pro Glu Glu Asn Glu Leu Ile Val Asn Phe Arg Glu Glu Asn
 225 230 235 240

Cys Val Ser Lys Ala Arg Lys Asn Ser Ser Arg Asp Glu Ile Cys Val
 245 250 255

Glu Glu Glu Arg Ser Ser Lys Leu Pro Ala Val Phe Gly Glu Asp Ile
 260 265 270

Leu Arg Ser Asp Val Val Asp Lys Ile Leu Val His Val Pro Gly Gly
275 280 285

Glu Ser Met Lys Glu Phe Asn Ala Leu Arg Asp Val Leu Lys Lys Gly
290 295 300

Val Glu Lys Lys Lys Ala Ser Asp Ala Gln Gly Gly Lys Arg Arg Ala
305 310 315 320

Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Gly Gly Gly Gln Asn
325 330 335

Gly Lys Lys Glu Val Val Asp Leu Arg Ser Leu Leu Ile His Cys Ala
340 345 350

Gln Ala Val Ala Ala Asp Asp Arg Arg Cys Ala Gly Gln Leu Leu Lys
355 360 365

Gln Ile Arg Leu His Ser Thr Pro Phe Gly Asp Gly Asn Gln Arg Leu
370 375 380

Ala His Cys Phe Ala Asn Gly Leu Glu Ala Arg Leu Ala Gly Thr Gly
385 390 395 400

Ser Gln Ile Tyr Lys Gly Ile Val Ser Lys Pro Arg Ser Ala Ala Ala
405 410 415

Val Leu Lys Ala His Gln Leu Phe Leu Ala Cys Cys Pro Phe Arg Lys
420 425 430

Leu Ser Tyr Phe Ile Thr Asn Lys Thr Ile Arg Asp Leu Val Gly Asn
435 440 445

Ser Gln Arg Val His Val Ile Asp Phe Gly Ile Leu Tyr Gly Phe Gln
450 455 460

Trp Pro Thr Leu Ile His Arg Phe Ser Met Tyr Gly Ser Pro Lys Val
465 470 475 480

Arg Ile Thr Gly Ile Glu Phe Pro Gln Pro Gly Phe Arg Pro Ala Gln
485 490 495

Arg Val Glu Glu Thr Gly Gln Arg Leu Ala Ala Tyr Ala Lys Leu Phe

500

505

510

Gly Val Pro Phe Glu Tyr Lys Ala Ile Ala Lys Lys Trp Asp Ala Ile
 515 520 525

Gln Leu Glu Asp Leu Asp Ile Asp Arg Asp Glu Ile Thr Val Val Asn
 530 535 540

Cys Leu Tyr Arg Ala Glu Asn Leu His Asp Glu Ser Val Lys Val Glu
 545 550 555 560

Ser Cys Arg Asp Thr Val Leu Asn Leu Ile Gly Lys Ile Asn Pro Asp
 565 570 575

Leu Phe Val Phe Gly Ile Val Asn Gly Ala Tyr Asn Ala Pro Phe Phe
 580 585 590

Val Thr Arg Phe Arg Glu Ala Leu Phe His Phe Ser Ser Ile Phe Asp
 595 600 605

Met Leu Glu Thr Ile Val Pro Arg Glu Asp Glu Glu Arg Met Phe Leu
 610 615 620

Glu Met Glu Val Phe Gly Arg Glu Ala Leu Asn Val Ile Ala Cys Glu
 625 630 635 640

Gly Trp Glu Arg Val Glu Arg Pro Glu Thr Tyr Lys Gln Trp His Val
 645 650 655

Arg Ala Met Arg Ser Gly Leu Val Gln Val Pro Phe Asp Pro Ser Ile
 660 665 670

Met Lys Thr Ser Leu His Lys Val His Thr Phe Tyr His Lys Asp Phe
 675 680 685

Val Ile Asp Gln Asp Asn Arg Trp Leu Leu Gln Gly Trp Lys Gly Arg
 690 695 700

Thr Val Met Ala Leu Ser Val Trp Lys Pro Glu Ser Lys Ala
 705 710 715

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 <222> (1)..(612) <223> G676

<400> 389
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Met Arg Lys Lys Val Ser Ser Ser Gly Asp Glu Gly Asn Asn Glu Tyr
1 5 10 15

aag aaa ggt ttg tgg aca gta gaa gaa gac aaa atc ctc atg gat tat 96
Lys Lys Gly Leu Trp Thr Val Glu Glu Asp Lys Ile Leu Met Asp Tyr
20 25 30

gtc aaa gct cat ggc aaa ggt cac tgg aat cgt att gcc aaa aag act 144
Val Lys Ala His Gly Lys Gly His Trp Asn Arg Ile Ala Lys Lys Thr
35 40 45

ggt tta aag aga tgt gga aag agt tgt aga ttg agg tgg atg aat tat 192
Gly Leu Lys Arg Cys Gly Lys Ser Cys Arg Leu Arg Trp Met Asn Tyr
50 55 60

ctc agc cct aat gtg aaa aga ggc aat ttc acc gag caa gaa gag gat 240
Leu Ser Pro Asn Val Lys Arg Gly Asn Phe Thr Glu Gln Glu Glu Asp
65 70 75 80

ctt atc att agg ctc cac aag ttg ctt ggt aat agg tgg tct tta att 288
Leu Ile Ile Arg Leu His Lys Leu Leu Gly Asn Arg Trp Ser Leu Ile
85 90 95

gct aaa aga gtg cag ggt cga acg gat aat caa gtg aag aac tat tgg 336
Ala Lys Arg Val Pro Gly Arg Thr Asp Asn Gln Val Lys Asn Tyr Trp
100 105 110

aac acg cat ctt agt aag aaa ctc gga atc aaa gat cag aaa acc aaa 384
Asn Thr His Leu Ser Lys Lys Leu Gly Ile Lys Asp Gln Lys Thr Lys
115 120 125

cag agc aat ggt gat att gtt tat caa atc aat ctc cag aat cct acc 432
Gln Ser Asn Gly Asp Ile Val Tyr Gln Ile Asn Leu Pro Asn Pro Thr
130 135 140

gaa aca tca gaa gaa acg aaa atc tgg aat att gtc gat aac aat aat 480
Glu Thr Ser Glu Glu Thr Lys Ile Ser Asn Ile Val Asp Asn Asn Asn
145 150 155 160

atc ctc gga gat gaa att caa gaa gat cat caa gga agt aac tac ttg 528
Ile Leu Gly Asp Glu Ile Gln Glu Asp His Gln Gly Ser Asn Tyr Leu
165 170 175

agt tca ctt tgg gtt cat gag gat gag ttt gag ctt agc aca ctc acc 576
Ser Ser Leu Trp Val His Glu Asp Glu Phe Glu Leu Ser Thr Leu Thr
180 185 190

aac atg atg gac ttt ata gat gga cac tgt ttt tga 612
Asn Met Met Asp Phe Ile Asp Gly His Cys Phe
195 200

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Met Arg Lys Lys Val Ser Ser Ser Gly Asp Glu Gly Asn Asn Glu Tyr
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Lys Lys Gly Leu Trp Thr Val Glu Glu Asp Lys Ile Leu Met Asp Tyr
20 25 30

Val Lys Ala His Gly Lys Gly His Trp Asn Arg Ile Ala Lys Lys Thr
35 40 45

Gly Leu Lys Arg Cys Gly Lys Ser Cys Arg Leu Arg Trp Met Asn Tyr
50 55 60

Leu Ser Pro Asn Val Lys Arg Gly Asn Phe Thr Glu Gln Glu Glu Asp
65 70 75 80

Leu Ile Ile Arg Leu His Lys Leu Leu Gly Asn Arg Trp Ser Leu Ile
85 90 95

Ala Lys Arg Val Pro Gly Arg Thr Asp Asn Gln Val Lys Asn Tyr Trp
100 105 110

Asn Thr His Leu Ser Lys Lys Leu Gly Ile Lys Asp Gln Lys Thr Lys
115 120 125

Gln Ser Asn Gly Asp Ile Val Tyr Gln Ile Asn Leu Pro Asn Pro Thr
130 135 140

Glu Thr Ser Glu Glu Thr Lys Ile Ser Asn Ile Val Asp Asn Asn Asn
145 150 155 160

Ile Leu Gly Asp Glu Ile Gln Glu Asp His Gln Gly Ser Asn Tyr Leu
165 170 175

Ser Ser Leu Trp Val His Glu Asp Glu Phe Glu Leu Ser Thr Leu Thr
180 185 190

Asn Met Met Asp Phe Ile Asp Gly His Cys Phe
195 200

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1				5					10					15			
cct	cca	cca	cct	gga	acc	acc	atc	tcc	gcc	gca	gga	gga	gga	gct	tct		96
Pro	Pro	Pro	Pro	Gly	Thr	Thr	Ile	Ser	Ala	Ala	Gly	Gly	Gly	Ala	Ser		
			20					25					30				
tac	cac	cac	ctt	ctc	caa	caa	caa	caa	caa	cag	ctc	caa	cta	ttc	tgg		144
Tyr	His	His	Leu	Leu	Gln	Gln	Gln	Gln	Gln	Gln	Leu	Gln	Leu	Phe	Trp		
			35				40					45					
acc	tac	caa	cgc	caa	gag	atc	gaa	caa	gtt	aac	gat	ttc	aaa	aac	cat		192
Thr	Tyr	Gln	Arg	Gln	Glu	Ile	Glu	Gln	Val	Asn	Asp	Phe	Lys	Asn	His		
			50			55					60						
cag	ctt	cca	cta	gct	agg	ata	aaa	aag	atc	atg	aaa	gcc	gat	gaa	gat		240
Gln	Leu	Pro	Leu	Ala	Arg	Ile	Lys	Lys	Ile	Met	Lys	Ala	Asp	Glu	Asp		
65					70				75					80			
gtt	cgt	atg	atc	tcc	gca	gaa	gca	ccg	att	ctc	ttc	gcg	aaa	gct	tgt		288
Val	Arg	Met	Ile	Ser	Ala	Glu	Ala	Pro	Ile	Leu	Phe	Ala	Lys	Ala	Cys		
				85				90						95			
gag	ctt	ttc	att	ctc	gag	ctc	acg	atc	aga	tct	tgg	ctt	cac	gct	gag		336
Glu	Leu	Phe	Ile	Leu	Glu	Leu	Thr	Ile	Arg	Ser	Trp	Leu	His	Ala	Glu		
			100					105					110				
gag	aat	aaa	cgt	cgt	acg	ctt	cag	aaa	aac	gat	atc	gct	gct	gcg	att		384
Glu	Asn	Lys	Arg	Arg	Thr	Leu	Gln	Lys	Asn	Asp	Ile	Ala	Ala	Ala	Ile		
			115				120					125					
act	agg	act	gat	atc	ttc	gat	ttc	ctt	gtt	gat	att	gtt	cct	aga	gat		432
Thr	Arg	Thr	Asp	Ile	Phe	Asp	Phe	Leu	Val	Asp	Ile	Val	Pro	Arg	Asp		
			130			135						140					
gag	att	aag	gac	gaa	gcc	gca	gtc	ctc	ggc	ggc	gga	atg	gtg	gtg	gct		480
Glu	Ile	Lys	Asp	Glu	Ala	Ala	Val	Leu	Gly	Gly	Gly	Met	Val	Val	Ala		
145					150					155				160			
cct	acc	gcg	agc	ggc	gtg	cct	tac	tat	tat	ccg	ccg	atg	gga	caa	cca		528
Pro	Thr	Ala	Ser	Gly	Val	Pro	Tyr	Tyr	Tyr	Pro	Pro	Met	Gly	Gln	Pro		
				165				170						175			
gct	ggc	cct	gga	ggg	atg	atg	att	ggg	aga	cca	gct	atg	gat	ccg	aat		576
Ala	Gly	Pro	Gly	Gly	Met	Met	Ile	Gly	Arg	Pro	Ala	Met	Asp	Pro	Asn		
			180					185					190				
ggc	gtt	tat	gtc	cag	cct	ccg	tct	cag	gcg	tgg	cag	agt	gtt	tgg	cag		624
Gly	Val	Tyr	Val	Gln	Pro	Pro	Ser	Gln	Ala	Trp	Gln	Ser	Val	Trp	Gln		
			195				200					205					
act	tcg	acg	ggg	acg	gga	gat	gat	gtc	tct	tat	ggc	agt	ggc	gga	agt		672
Thr	Ser	Thr	Gly	Thr	Gly	Asp	Asp	Val	Ser	Tyr	Gly	Ser	Gly	Gly	Ser		
			210			215					220						
tcc	ggc	caa	ggg	aat	ctc	gac	ggc	caa	ggg	taa							705
Ser	Gly	Gln	Gly	Asn	Leu	Asp	Gly	Gln	Gly								

225

230

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Met Asp Thr Asn Asn Gln Gln Pro Pro Pro Ser Ala Ala Gly Ile Pro
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35 40 45Thr Tyr Gln Arg Gln Glu Ile Glu Gln Val Asn Asp Phe Lys Asn His
50 55 60Gln Leu Pro Leu Ala Arg Ile Lys Lys Ile Met Lys Ala Asp Glu Asp
65 70 75 80Val Arg Met Ile Ser Ala Glu Ala Pro Ile Leu Phe Ala Lys Ala Cys
85 90 95Glu Leu Phe Ile Leu Glu Leu Thr Ile Arg Ser Trp Leu His Ala Glu
100 105 110Glu Asn Lys Arg Arg Thr Leu Gln Lys Asn Asp Ile Ala Ala Ala Ile
115 120 125Thr Arg Thr Asp Ile Phe Asp Phe Leu Val Asp Ile Val Pro Arg Asp
130 135 140Glu Ile Lys Asp Glu Ala Ala Val Leu Gly Gly Gly Met Val Val Ala
145 150 155 160Pro Thr Ala Ser Gly Val Pro Tyr Tyr Tyr Pro Pro Met Gly Gln Pro
165 170 175Ala Gly Pro Gly Gly Met Met Ile Gly Arg Pro Ala Met Asp Pro Asn
180 185 190Gly Val Tyr Val Gln Pro Pro Ser Gln Ala Trp Gln Ser Val Trp Gln
195 200 205

Thr Ser Thr Gly Thr Gly Asp Asp Val Ser Tyr Gly Ser Gly Gly Ser
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Ser Gly Gln Gly Asn Leu Asp Gly Gln Gly
225 230

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acacgagtgt catcttttga tttgtgtctt gtgtgctctc tctttcttct ctctctcgaa 180

tgatcatctt tatataaccc tactctcttt ctcttttccc attctttcat atcattctcc 240

ctttctctct cgggatctga tctctctttc cagtaaccta ttcccgagga gcaactgtcaa 300

atcttgacca ctcttttgat ttatctcgat ctctttctct ttctagtctt gtgtagtctt 360

caaactgtgt atgttatcta tatagtaato acgagagaga atcatacaat agctgaaaca 420

taaagctttc ttagaagctt taaaaaggtc tcactctggat tatcctgttt aatttctaga 480

gtttcttcag gcagattatt aaccgatcaa gaagacaaac atg aat tca ttt tcc 535
Met Asn Ser Phe Ser
1 5

cac gtc cct ccg ggt ttt aga ttt cac ccg aca gat gaa gaa ctt gta 583
His Val Pro Pro Gly Phe Arg Phe His Pro Thr Asp Glu Glu Leu Val
10 15 20

gac tac tac ctg agg aaa aaa gtc gca tcg aag aga ata gaa att gat 631
Asp Tyr Tyr Leu Arg Lys Lys Val Ala Ser Lys Arg Ile Glu Ile Asp
25 30 35

ttc ata aag gac att gat ctt tac aag att gag cca tgg gac ctt caa 679
Phe Ile Lys Asp Ile Asp Leu Tyr Lys Ile Glu Pro Thr Asp Leu Gln
40 45 50

gag ttg tgc aaa att ggg cat gaa gag cag agt gat tgg tac ttc ttt 727
Glu Leu Cys Lys Ile Gly His Glu Glu Gln Ser Asp Trp Tyr Phe Phe
55 60 65

agc cat aaa gac aag aag tat ccc aca ggg act cga acc aat aga gca 775
Ser His Lys Asp Lys Lys Tyr Pro Thr Gly Thr Arg Thr Asn Arg Ala
70 75 80 85

aca aaa gca ggg ttt tgg aaa gcc acc gga aga gat aag gct atc tat 823
Thr Lys Ala Gly Phe Trp Lys Ala Thr Gly Arg Asp Lys Ala Ile Tyr
90 95 100

ttg agg cat agt cta att ggc atg agg aaa aca ctt gtg ttt tac aag 871

Leu Arg His Ser Leu Ile Gly Met Arg Lys Thr Leu Val Phe Tyr Lys	
105 110 115	
gga aga gcc cca aat gga caa aag tct gat tgg atc atg cac gaa tac	919
Gly Arg Ala Pro Asn Gly Gln Lys Ser Asp Trp Ile Met His Glu Tyr	
120 125 130	
cgc tta gaa acc gat gaa aac gga act cct cag gaa gaa gga tgg gtt	967
Arg Leu Glu Thr Asp Glu Asn Gly Thr Pro Gln Glu Glu Gly Trp Val	
135 140 145	
gtg tgt agg gtt ttc aag aag aga ttg gct gca gtt aga cga atg gga	1015
Val Cys Arg Val Phe Lys Lys Arg Leu Ala Ala Val Arg Arg Met Gly	
150 155 160 165	
gat tac gac tca tcc cct tca cat tgg tac gat gat caa ctt tct ttt	1063
Asp Tyr Asp Ser Ser Pro Ser His Trp Tyr Asp Asp Gln Leu Ser Phe	
170 175 180	
atg gcc tcc gag ctc gag aca aac ggt caa cga cgg att ctc ccc aat	1111
Met Ala Ser Glu Leu Glu Thr Asn Gly Gln Arg Arg Ile Leu Pro Asn	
185 190 195	
cat cat cag cag cag cag cag cac gag cac caa caa cat atg cca tat ggc	1159
His His Gln Gln Gln Gln His Glu His Gln Gln His Met Pro Tyr Gly	
200 205 210	
ctc aat gca tct gct tac gct ctc aac aac cct aac ttg caa tgc aag	1207
Leu Asn Ala Ser Ala Tyr Ala Leu Asn Asn Pro Asn Leu Gln Cys Lys	
215 220 225	
caa gag cta gaa cta cac tac aac cac ctg caa tca aat atc gcg cat	1255
Gln Glu Leu Glu Leu His Tyr Asn His Leu Gln Ser Asn Ile Ala His	
230 235 240 245	
gag gaa caa ttg aat caa gga aat cag aac ttc agc tct cta tac atg	1303
Glu Glu Gln Leu Asn Gln Gly Asn Gln Asn Phe Ser Ser Leu Tyr Met	
250 255 260	
aac agc ggc aac gag caa gtg atg gac caa gtc aca gac tgg aga gtt	1351
Asn Ser Gly Asn Glu Gln Val Met Asp Gln Val Thr Asp Trp Arg Val	
265 270 275	
ctc gat aaa ttt gtt gct tct cag cta agc aac gag gag gct gcc aca	1399
Leu Asp Lys Phe Val Ala Ser Gln Leu Ser Asn Glu Glu Ala Ala Thr	
280 285 290	
gct tct gca tct ata cag aat aat gcc aag gac aca agc aat gct gag	1447
Ala Ser Ala Ser Ile Gln Asn Asn Ala Lys Asp Thr Ser Asn Ala Glu	
295 300 305	
tac caa gtt gat gaa gaa aaa gat ccg aaa agg gct tca gac atg gga	1495
Tyr Gln Val Asp Glu Glu Lys Asp Pro Lys Arg Ala Ser Asp Met Gly	
310 315 320 325	
gaa gaa tat act got tct act tct tcg agt tgt cag att gat cta tgg	1543
Glu Glu Tyr Thr Ala Ser Thr Ser Ser Ser Cys Gln Ile Asp Leu Trp	

	330	335	340	
aag tga gctgaaagag aagacatata aatgcatata tacatatata tatatacgta				1599
Lys				
cacacgaaca ctaatcaagt gtagatgatg atgatggtag agatttatat ttgctttgat				1659
tgattcttac tacattattg aacttatgtc atatgcatat atacattgcy tatctatgca				1719
tatttatact tgtactcaat atgattaacc atataataac tctaacttaa atgtaactcc				1779
aatatttttt aaatagacaa ttgtctcttc ttattagaaa aaaaa				1824
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Asp Glu Glu Leu Val Asp Tyr Tyr Leu Arg Lys Lys Val Ala Ser Lys				
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Arg Ile Glu Ile Asp Phe Ile Lys Asp Ile Asp Leu Tyr Lys Ile Glu				
35 40 45				
Pro Trp Asp Leu Gln Glu Leu Cys Lys Ile Gly His Glu Glu Gln Ser				
50 55 60				
Asp Trp Tyr Phe Phe Ser His Lys Asp Lys Lys Tyr Pro Thr Gly Thr				
65 70 75 80				
Arg Thr Asn Arg Ala Thr Lys Ala Gly Phe Trp Lys Ala Thr Gly Arg				
85 90 95				
Asp Lys Ala Ile Tyr Leu Arg His Ser Leu Ile Gly Met Arg Lys Thr				
100 105 110				
Leu Val Phe Tyr Lys Gly Arg Ala Pro Asn Gly Gln Lys Ser Asp Trp				
115 120 125				
Ile Met His Glu Tyr Arg Leu Glu Thr Asp Glu Asn Gly Thr Pro Gln				
130 135 140				
Glu Glu Gly Trp Val Val Cys Arg Val Phe Lys Lys Arg Leu Ala Ala				
145 150 155 160				

Val Arg Arg Met Gly Asp Tyr Asp Ser Ser Pro Ser His Trp Tyr Asp
165 175

Asp Gln Leu Ser Phe Met Ala Ser Glu Leu Glu Thr Asn Gly Gln Arg
180 185 190

Arg Ile Leu Pro Asn His His Gln Gln Gln Gln His Glu His Gln Gln
195 200 205

His Met Pro Tyr Gly Leu Asn Ala Ser Ala Tyr Ala Leu Asn Asn Pro
210 215 220

Asn Leu Gln Cys Lys Gln Glu Leu Glu Leu His Tyr Asn His Leu Gln
225 230 235 240

Ser Asn Ile Ala His Glu Glu Gln Leu Asn Gln Gly Asn Gln Asn Phe
245 250 255

Ser Ser Leu Tyr Met Asn Ser Gly Asn Glu Gln Val Met Asp Gln Val
260 265 270

Thr Asp Trp Arg Val Leu Asp Lys Phe Val Ala Ser Gln Leu Ser Asn
275 280 285

Glu Glu Ala Ala Thr Ala Ser Ala Ser Ile Gln Asn Asn Ala Lys Asp
290 295 300

Thr Ser Asn Ala Glu Tyr Gln Val Asp Glu Glu Lys Asp Pro Lys Arg
305 310 315 320

Ala Ser Asp Met Gly Glu Glu Tyr Thr Ala Ser Thr Ser Ser Ser Cys
325 330 335

Gln Ile Asp Leu Trp Lys
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Met Val Ser
1

ccg gag aat acg aac tgg ctt agt gat tac cct ttg att gaa ggt gct	166
Pro Glu Asn Thr Asn Trp Leu Ser Asp Tyr Pro Leu Ile Glu Gly Ala	
5 10 15	
ttc tct gat cag aac ccc act ttc cct tgg cag ata gat ggc tca gct	214
Phe Ser Asp Gln Asn Pro Thr Phe Pro Trp Gln Ile Asp Gly Ser Ala	
20 25 30 35	
act gtc agt gtt gaa gtg gat ggc ttc ctt tgt gat gca gat gtg atc	262
Thr Val Ser Val Glu Val Asp Gly Phe Leu Cys Asp Ala Asp Val Ile	
40 45 50	
aaa gaa cca agt tca agg aag agg atc aaa act gaa tct tgc act ggt	310
Lys Glu Pro Ser Ser Arg Lys Arg Ile Lys Thr Glu Ser Cys Thr Gly	
55 60 65	
tct aac tcg aaa gct tgt agg gag aaa caa aga cgt gat aga cta aat	358
Ser Asn Ser Lys Ala Cys Arg Glu Lys Gln Arg Arg Asp Arg Leu Asn	
70 75 80	
gac aag ttt acg gag ttg agt tcc gta ttg gaa cct ggg aga act cca	406
Asp Lys Phe Thr Glu Leu Ser Ser Val Leu Glu Pro Gly Arg Thr Pro	
85 90 95	
aaa aca gac aag gtt gct att atc aat gat gca att cgc atg gtg aat	454
Lys Thr Asp Lys Val Ala Ile Ile Asn Asp Ala Ile Arg Met Val Asn	
100 105 110 115	
caa gca aga gat gaa gcg cag aaa cta aag gac ttg aac tca agc ctc	502
Gln Ala Arg Asp Glu Ala Gln Lys Leu Lys Asp Leu Asn Ser Ser Leu	
120 125 130	
cag gag aaa atc aag gag ttg aag gat gag aag aac gag ctg cgt gat	550
Gln Glu Lys Ile Lys Glu Leu Lys Asp Glu Lys Asn Glu Leu Arg Asp	
135 140 145	
gag aaa cag aag ctt aag gtc gag aag gag aga atc gat cag caa ctg	598
Glu Lys Gln Lys Leu Lys Val Glu Lys Glu Arg Ile Asp Gln Gln Leu	
150 155 160	
aaa gct att aag aca cag cct cag cct caa cct tgt ttc tta cca aat	646
Lys Ala Ile Lys Thr Gln Pro Gln Pro Gln Pro Cys Phe Leu Pro Asn	
165 170 175	
ccg caa aca ctc tct caa gct caa gct cct gga agc aag ctt gtc cct	694
Pro Gln Thr Leu Ser Gln Ala Gln Ala Pro Gly Ser Lys Leu Val Pro	
180 185 190 195	
ttc aca act tat ccc ggc ttt gca atg tgg caa ttc atg cct cct gct	742
Phe Thr Thr Tyr Pro Gly Phe Ala Met Trp Gln Phe Met Pro Pro Ala	
200 205 210	
gct gtt gat acc tca cag gac cat gtc ctt cgt cct cca gtt gct taa	790
Ala Val Asp Thr Ser Gln Asp His Val Leu Arg Pro Pro Val Ala	
215 220 225	

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Gly Ser Ala Thr Val Ser Val Glu Val Asp Gly Phe Leu Cys Asp Ala
 35 40 45

Asp Val Ile Lys Glu Pro Ser Ser Arg Lys Arg Ile Lys Thr Glu Ser
 50 55 60

Cys Thr Gly Ser Asn Ser Lys Ala Cys Arg Glu Lys Gln Arg Arg Asp
 65 70 75 80

Arg Leu Asn Asp Lys Phe Thr Glu Leu Ser Ser Val Leu Glu Pro Gly
 85 90 95

Arg Thr Pro Lys Thr Asp Lys Val Ala Ile Ile Asn Asp Ala Ile Arg
 100 105 110

Met Val Asn Gln Ala Arg Asp Glu Ala Gln Lys Leu Lys Asp Leu Asn
 115 120 125

Ser Ser Leu Gln Glu Lys Ile Lys Glu Leu Lys Asp Glu Lys Asn Glu
 130 135 140

Leu Arg Asp Glu Lys Gln Lys Leu Lys Val Glu Lys Glu Arg Ile Asp
 145 150 155 160

Gln Gln Leu Lys Ala Ile Lys Thr Gln Pro Gln Pro Gln Pro Cys Phe
 165 170 175

Leu Pro Asn Pro Gln Thr Leu Ser Gln Ala Gln Ala Pro Gly Ser Lys
 180 185 190

Leu Val Pro Phe Thr Thr Tyr Pro Gly Phe Ala Met Trp Gln Phe Met
195 200 205

Pro Pro Ala Ala Val Asp Thr Ser Gln Asp His Val Leu Arg Pro Pro
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Val Ala
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Met Asn Leu Phe Thr Arg Ile
1 5

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Ser Ser Arg Thr Lys Lys Ala Asn Leu Tyr Tyr Val Thr Leu Val Ala
10 15 20

ctt ctc tgc atc gct agc tac ctt ctc ggt att tgg caa aac acg gcg 208
Leu Leu Cys Ile Ala Ser Tyr Leu Leu Gly Ile Trp Gln Asn Thr Ala
25 30 35

gtt aat cca cgc gcc gcc ttc gat gat tca gac ggt aca ccg tgc gag 256
Val Asn Pro Arg Ala Ala Phe Asp Asp Ser Asp Gly Thr Pro Cys Glu
40 45 50 55

gga ttc acc aga cct aat tct acg aaa gat ctc gac ttc gac gcg cat 304
Gly Phe Thr Arg Pro Asn Ser Thr Lys Asp Leu Asp Phe Asp Ala His
60 65 70

cac aac att caa gat cca cct ccg gtg acg gaa acc gcc gtt agt ttc 352
His Asn Ile Gln Asp Pro Pro Pro Val Thr Glu Thr Ala Val Ser Phe
75 80 85

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Pro Ser Cys Ala Ala Ala Leu Ser Glu His Thr Pro Cys Glu Asp Ala
90 95 100

aag cga tcg ttg aaa ttc tcg agg gag aga ttg gag tat agg caa agg 448
Lys Arg Ser Leu Lys Phe Ser Arg Glu Arg Leu Glu Tyr Arg Gln Arg
105 110 115

cat tgt ccc gag aga gaa gaa atc ttg aag tgc aga att ccg gcg ccg 496
His Cys Pro Glu Arg Glu Glu Ile Leu Lys Cys Arg Ile Pro Ala Pro
120 125 130 135

tac ggt tac aaa acg ccg ttc cga tgg ccg gcg agt cgt gac gtg gcg 544

Tyr Gly Tyr Lys Thr Pro Phe Arg Trp Pro Ala Ser Arg Asp Val Ala	
140 145 150	
tgg ttc gct aat gtg cct cac acg gag ctt acg gtt gag aaa aag aat	592
Trp Phe Ala Asn Val Pro His Thr Glu Leu Thr Val Glu Lys Asn	
155 160 165	
cag aat tgg gtc cgg tac gag aat gat cgg ttt tgg ttc cct ggt gga	640
Gln Asn Trp Val Arg Tyr Glu Asn Asp Arg Phe Trp Phe Pro Gly Gly	
170 175 180	
ggt acg atg ttt cca cgt ggc gct gat gct tac att gat gat atc gga	688
Gly Thr Met Phe Pro Arg Gly Ala Asp Ala Tyr Ile Asp Asp Ile Gly	
185 190 195	
cgg ttg att gat ctc agc gac ggc tct atc cgt aca gcc atc gat acc	736
Arg Leu Ile Asp Leu Ser Asp Gly Ser Ile Arg Thr Ala Ile Asp Thr	
200 205 210 215	
ggt tgc ggg gtg gct agc ttc ggt gca tat ctt tta tca aga aac att	784
Gly Cys Gly Val Ala Ser Phe Gly Ala Tyr Leu Leu Ser Arg Asn Ile	
220 225 230	
aca acg atg tca ttt gca cca aga gac aca cac gaa gct caa gtc cag	832
Thr Thr Met Ser Phe Ala Pro Arg Asp Thr His Glu Ala Gln Val Gln	
235 240 245	
ttc gca etc gag cgt ggt gtg cgg cgg atg atc gga atc atg gct aca	880
Phe Ala Leu Glu Arg Gly Val Pro Ala Met Ile Gly Ile Met Ala Thr	
250 255 260	
atc cgc cta ccg tac cct tct aga gcc ttt gat tta gca cat tgc tct	928
Ile Arg Leu Pro Tyr Pro Ser Arg Ala Phe Asp Leu Ala His Cys Ser	
265 270 275	
cgt tgc ctt att ccg tgg ggc caa aac gat ggg gct tac ttg atg gag	976
Arg Cys Leu Ile Pro Trp Gly Gln Asn Asp Gly Ala Tyr Leu Met Glu	
280 285 290 295	
gtg gat agg gtt tta aga cca gga ggg tac tgg ata ctt tct gga ccg	1024
Val Asp Arg Val Leu Arg Pro Gly Gly Tyr Trp Ile Leu Ser Gly Pro	
300 305 310	
ccg att aat tgg cag aaa cgg tgg aaa ggg tgg gaa cgg acc atg gat	1072
Pro Ile Asn Trp Gln Lys Arg Trp Lys Gly Trp Glu Arg Thr Met Asp	
315 320 325	
gat ttg aat gca gag cag act cag atc gag cag gtc cgg aga agc ttg	1120
Asp Leu Asn Ala Glu Gln Thr Gln Ile Glu Gln Val Ala Arg Ser Leu	
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tgt tgg aag aaa gtt gtt caa aga gat gat ctt gct att tgg caa aaa	1168
Cys Trp Lys Lys Val Val Gln Arg Asp Asp Leu Ala Ile Trp Gln Lys	
345 350 355	
ccc ttt aac cac att gac tgt aag aaa acc aga gag gtt ttg aaa aat	1216
Pro Phe Asn His Ile Asp Cys Lys Lys Thr Arg Glu Val Leu Lys Asn	

360	365	370	375	
cgc gag ttt tgt cgt cat gat caa gat ccc gac atg gcc tgg tat acg	1264			
Pro Glu Phe Cys Arg His Asp Gln Asp Pro Asp Met Ala Trp Tyr Thr				
380 385 390				
aag atg gat tct tgt ttg aca cca tta cct gaa gtt gat gac gct gag	1312			
Lys Met Asp Ser Cys Leu Thr Pro Leu Pro Glu Val Asp Ala Glu				
395 400 405				
gat cta aag acg gtg gcc gga ggg aag gta gaa aag tgg ccg gct aga	1360			
Asp Leu Lys Thr Val Ala Gly Gly Lys Val Glu Lys Trp Pro Ala Arg				
410 415 420				
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Leu Asn Ala Ile Pro Pro Arg Val Asn Lys Gly Ala Leu Glu Glu Ile				
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Thr Pro Glu Ala Phe Leu Glu Asn Thr Lys Leu Trp Lys Gln Arg Val				
440 445 450 455				
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Ser Tyr Tyr Lys Lys Leu Asp Tyr Gln Leu Gly Glu Thr Gly Arg Tyr				
460 465 470				
aga aac tta gtc gac atg aac gct tac ctc ggt gga ttc gcg gcg gct	1552			
Arg Asn Leu Val Asp Met Asn Ala Tyr Leu Gly Gly Phe Ala Ala Ala				
475 480 485				
cta gcg gat gat ccg gtc tgg gtc atg aac gtt gtc ccg gtc gag gct	1600			
Leu Ala Asp Asp Pro Val Trp Val Met Asn Val Val Pro Val Glu Ala				
490 495 500				
aag ctc aat acg ctc ggt gtc atc tac gag cgt ggt cta atc gga acg	1648			
Lys Leu Asn Thr Leu Gly Val Ile Tyr Glu Arg Gly Leu Ile Gly Thr				
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tat caa aac tgg tgt gaa gcc atg tcg acg tat cca aga acg tat gat	1696			
Tyr Gln Asn Trp Cys Glu Ala Met Ser Thr Tyr Pro Arg Thr Tyr Asp				
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Phe Ile His Ala Asp Ser Val Phe Thr Leu Tyr Gln Gly Gln Cys Glu				
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ccg gag gag ata ttg ttg gag atg gac cga att ctt aga ccg ggt ggt	1792			
Pro Glu Glu Ile Leu Leu Glu Met Asp Arg Ile Leu Arg Pro Gly Gly				
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ggt gtg att ata aga gat gac gtg gac gtt ttg atc aag gtt aag gaa	1840			
Gly Val Ile Ile Arg Asp Asp Val Asp Val Leu Ile Lys Val Lys Glu				
570 575 580				
tta acc aaa gga tta gaa tgg gaa ggt aga att gct gac cac gag aag	1888			
Leu Thr Lys Gly Leu Glu Trp Glu Gly Arg Ile Ala Asp His Glu Lys				
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ggt cct cat gaa aga gag aag att tac tat gcg gtg aaa cag tat tgg 1936
 Gly Pro His Glu Arg Glu Lys Ile Tyr Tyr Ala Val Lys Gln Tyr Trp
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acc gtt cct gcg cct gat gaa gat aaa aac aac act agt gct ctc tcc 1984
 Thr Val Pro Ala Pro Asp Glu Asp Lys Asn Asn Thr Ser Ala Leu Ser
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Gly Ile Trp Gln Asn Thr Ala Val Asn Pro Arg Ala Ala Phe Asp Asp
 35 40 45

Ser Asp Gly Thr Pro Cys Glu Gly Phe Thr Arg Pro Asn Ser Thr Lys
 50 55 60

Asp Leu Asp Phe Asp Ala His His Asn Ile Gln Asp Pro Pro Pro Val
 65 70 75 80

Thr Glu Thr Ala Val Ser Phe Pro Ser Cys Ala Ala Ala Leu Ser Glu
 85 90 95

His Thr Pro Cys Glu Asp Ala Lys Arg Ser Leu Lys Phe Ser Arg Glu
 100 105 110

Arg Leu Glu Tyr Arg Gln Arg His Cys Pro Glu Arg Glu Glu Ile Leu
 115 120 125

Lys Cys Arg Ile Pro Ala Pro Tyr Gly Tyr Lys Thr Pro Phe Arg Trp
 130 135 140

Pro Ala Ser Arg Asp Val Ala Trp Phe Ala Asn Val Pro His Thr Glu
 145 150 155 160

Leu Thr Val Glu Lys Lys Asn Gln Asn Trp Val Arg Tyr Glu Asn Asp

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Arg Phe Trp Phe Pro Gly Gly Gly Thr Met Phe Pro Arg Gly Ala Asp
180 185 190

Ala Tyr Ile Asp Asp Ile Gly Arg Leu Ile Asp Leu Ser Asp Gly Ser
195 200 205

Ile Arg Thr Ala Ile Asp Thr Gly Cys Gly Val Ala Ser Phe Gly Ala
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Tyr Leu Leu Ser Arg Asn Ile Thr Thr Met Ser Phe Ala Pro Arg Asp
225 230 235 240

Thr His Glu Ala Gln Val Gln Phe Ala Leu Glu Arg Gly Val Pro Ala
245 250 255

Met Ile Gly Ile Met Ala Thr Ile Arg Leu Pro Tyr Pro Ser Arg Ala
260 265 270

Phe Asp Leu Ala His Cys Ser Arg Cys Leu Ile Pro Trp Gly Gln Asn
275 280 285

Asp Gly Ala Tyr Leu Met Glu Val Asp Arg Val Leu Arg Pro Gly Gly
290 295 300

Tyr Trp Ile Leu Ser Gly Pro Pro Ile Asn Trp Gln Lys Arg Trp Lys
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Gly Trp Glu Arg Thr Met Asp Asp Leu Asn Ala Glu Gln Thr Gln Ile
325 330 335

Glu Gln Val Ala Arg Ser Leu Cys Trp Lys Lys Val Val Gln Arg Asp
340 345 350

Asp Leu Ala Ile Trp Gln Lys Pro Phe Asn His Ile Asp Cys Lys Lys
355 360 365

Thr Arg Glu Val Leu Lys Asn Pro Glu Phe Cys Arg His Asp Gln Asp
370 375 380

Pro Asp Met Ala Trp Tyr Thr Lys Met Asp Ser Cys Leu Thr Pro Leu
385 390 395 400

Pro Glu Val Asp Asp Ala Glu Asp Leu Lys Thr Val Ala Gly Gly Lys
405 410 415

Val Glu Lys Trp Pro Ala Arg Leu Asn Ala Ile Pro Pro Arg Val Asn
420 425 430

Lys Gly Ala Leu Glu Glu Ile Thr Pro Glu Ala Phe Leu Glu Asn Thr
435 440 445

Lys Leu Trp Lys Lys Arg Val Ser Tyr Tyr Lys Lys Leu Asp Tyr Gln
450 455 460

Leu Gly Glu Thr Gly Arg Tyr Arg Asn Leu Val Asp Met Asn Ala Tyr
465 470 475 480

Leu Gly Gly Phe Ala Ala Ala Leu Ala Asp Asp Pro Val Trp Val Met
485 490 495

Asn Val Val Pro Val Glu Ala Lys Leu Asn Thr Leu Gly Val Ile Tyr
500 505 510

Glu Arg Gly Leu Ile Gly Thr Tyr Gln Asn Trp Cys Glu Ala Met Ser
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Thr Tyr Pro Arg Thr Tyr Asp Phe Ile His Ala Asp Ser Val Phe Thr
530 535 540

Leu Tyr Gln Gly Gln Cys Glu Pro Glu Glu Ile Leu Leu Glu Met Asp
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Arg Ile Leu Arg Pro Gly Gly Gly Val Ile Ile Arg Asp Asp Val Asp
565 570 575

Val Leu Ile Lys Val Lys Glu Leu Thr Lys Gly Leu Glu Trp Glu Gly
580 585 590

Arg Ile Ala Asp His Glu Lys Gly Pro His Glu Arg Glu Lys Ile Tyr
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ctcatcaacc aattgtacca ctatgctccc cagattcctt cattatctct atcaata 237
atg gcg ttg aag tct agt tct gct gat ggt aaa acc aga agc tct gtt 285
Met Ala Leu Lys Ser Ser Ser Ala Asp Gly Lys Thr Arg Ser Ser Val
1 5 10 15
cag atc ttc att gtg ttt agt tta tgt tgc ttc ttt tac att ttg gga 333
Gln Ile Phe Ile Val Phe Ser Leu Cys Cys Phe Phe Tyr Ile Leu Gly
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gca tgg caa cga agt ggt ttt ggt aaa gga gac agt att gct ctt gag 381
Ala Trp Gln Arg Ser Gly Phe Gly Lys Gly Asp Ser Ile Ala Leu Glu
35 40 45
atg acc aac agt gga gct gat tgc aac att gtt cct agc ttg aat ttc 429
Met Thr Asn Ser Gly Ala Asp Cys Asn Ile Val Pro Ser Leu Asn Phe
50 55 60
gag act cat cac gct gcc gaa tca agt ctt gtt ggt gct tct gaa gct 477
Glu Thr His His Ala Gly Glu Ser Ser Leu Val Gly Ala Ser Glu Ala
65 70 75 80
gca aag gtc aag gct ttc gag ccc tgt gat ggt cgt tac acg gat tac 525
Ala Lys Val Lys Ala Phe Glu Pro Cys Asp Gly Arg Tyr Thr Asp Tyr
85 90 95
act cct tgt caa gat cag aga cgt gcc atg act ttc ccg aga gat agt 573
Thr Pro Cys Gln Asp Gln Arg Arg Ala Met Thr Phe Pro Arg Asp Ser
100 105 110
atg att tac cga gaa agg cat tgc gct cct gag aat gag aag ctc cat 621
Met Ile Tyr Arg Glu Arg His Cys Ala Pro Glu Asn Glu Lys Leu His
115 120 125
tgt ctt ata ccg gct cct aaa gga tat gtg aca cct ttc tct tgg cct 669
Cys Leu Ile Pro Ala Pro Lys Gly Tyr Val Thr Pro Phe Ser Trp Pro
130 135 140
aag agt cga gac tat gtg cct tat gct aat gcg ccg tat aaa gca ttg 717
Lys Ser Arg Asp Tyr Val Pro Tyr Ala Asn Ala Pro Tyr Lys Ala Leu
145 150 155 160

act gtt gag aag gct att cag aat tgg att cag tat gag gga gac gtt Thr Val Glu Lys Ala Ile Gln Asn Trp Ile Gln Tyr Glu Gly Asp Val 165 170 175	765
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tat atc gat cag ctt gct tcc gtg ata cct atg gag aac gga act gtt Tyr Ile Asp Gln Leu Ala Ser Val Ile Pro Met Glu Asn Gly Thr Val 195 200 205	861
agg act gct ttg gac act ggt tgt ggg gtt gca agt tgg gga gcg tac Arg Thr Ala Leu Asp Thr Gly Cys Gly Val Ala Ser Trp Gly Ala Tyr 210 215 220	909
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cac gag gct cag gtc cag ttt gct ctc gag aga ggt gtt ccc gct gtt His Glu Ala Gln Val Gln Phe Ala Leu Glu Arg Gly Val Pro Ala Val 245 250 255	1005
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ggg atg tac ttg atg gaa gtt gac cgt gtg ctt aga cct ggt ggg tac Gly Met Tyr Leu Met Glu Val Asp Arg Val Leu Arg Pro Gly Gly Tyr 290 295 300	1149
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tgg caa cgt ccc aag gag gac ctt caa gag gaa caa aga aag att gag Trp Gln Arg Pro Lys Glu Asp Leu Gln Glu Gln Arg Lys His Glu 325 330 335	1245
gaa gct gct aaa ctt ctt tgt tgg gag aaa aag tat gaa cac ggt gag Glu Ala Ala Lys Leu Leu Cys Trp Glu Lys Lys Tyr Glu His Gly Glu 340 345 350	1293
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caa gat gat cct aga gcc aat ttc tgc aaa acc gat gat acc gat gat Gln Asp Asp Pro Arg Ala Asn Phe Cys Lys Thr Asp Asp Thr Asp Asp 370 375 380	1389
gtc tgg tac aag aaa atg gag gca tgt att aca ccg tat ccg gag aca	1437

Val Trp Tyr Lys Lys Met Glu Ala Cys Ile Thr Pro Tyr Pro Glu Thr	385	390	395	400	
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agg ctc aat gca gtg cgg ccc agg atc tct agc ggt tcg atc tct ggt	1533				
Arg Leu Asn Ala Val Pro Pro Arg Ile Ser Ser Gly Ser Ile Ser Gly		420	425	430	
gtt act gtt gat gcc tat gaa gac gat aac aga cag tgg aaa aaa cat	1581				
Val Thr Val Asp Ala Tyr Glu Asp Asp Asn Arg Gln Trp Lys Lys His		435	440	445	
gtg aaa gcc tac aag aga atc aac agt cta ctt gac act gga agg tac	1629				
Val Lys Ala Tyr Lys Arg Ile Asn Ser Leu Leu Asp Thr Gly Arg Tyr		450	455	460	
cgt aac atc atg gac atg aac gca ggg ttt ggt gga ttt gct gct gct	1677				
Arg Asn Ile Met Asp Met Asn Ala Gly Phe Gly Gly Phe Ala Ala Ala		465	470	475	480
ctt gaa tcc caa aag ctt tgg gtt atg aat gtt gtt ccc aca att gcc	1725				
Leu Glu Ser Gln Lys Leu Trp Val Met Asn Val Val Pro Thr Ile Ala		485	490	495	
gaa aag aac aga ctc gga gtt gta tat gaa cga gga ctc atc ggt atc	1773				
Glu Lys Asn Arg Leu Gly Val Val Tyr Glu Arg Gly Leu Ile Gly Ile		500	505	510	
tac cat gac tgg tgt gag gct ttc tct aca tat cca aga aca tat gac	1821				
Tyr His Asp Trp Cys Glu Ala Phe Ser Thr Tyr Pro Arg Thr Tyr Asp		515	520	525	
ctg atc cac cgg aac cac ctc ttc agt cta tac aag aac aag tgc aat	1869				
Leu Ile His Ala Asn His Leu Phe Ser Leu Tyr Lys Asn Lys Cys Asn		530	535	540	
gcg gat gat att ctt cta gag atg gat aga att ctc cga cca gaa gga	1917				
Ala Asp Asp Ile Leu Leu Glu Met Asp Arg Ile Leu Arg Pro Glu Gly		545	550	555	560
gcg gtt ata atc cgg gat gat gtg gat aca ttg atc aag gtg aag aga	1965				
Ala Val Ile Ile Arg Asp Asp Val Asp Thr Leu Ile Lys Val Lys Arg		565	570	575	
atc atc gct tgg aat gag atg gga tgc gaa gct tgt cga tca tga	2010				
Ile Ile Ala Trp Asn Glu Met Gly Cys Glu Ala Cys Arg Ser		580	585	590	
ggatggtcct ttatgttctg agaaggtttt gattgccgtg aagcagtatt gggtcaccaa	2070				
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Met Thr Asn Ser Gly Ala Asp Cys Asn Ile Val Pro Ser Leu Asn Phe
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Glu Thr His His Ala Gly Glu Ser Ser Leu Val Gly Ala Ser Glu Ala
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Ala Lys Val Lys Ala Phe Glu Pro Cys Asp Gly Arg Tyr Thr Asp Tyr
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Thr Pro Cys Gln Asp Gln Arg Arg Ala Met Thr Phe Pro Arg Asp Ser
100 105 110

Met Ile Tyr Arg Glu Arg His Cys Ala Pro Glu Asn Glu Lys Leu His
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Cys Leu Ile Pro Ala Pro Lys Gly Tyr Val Thr Pro Phe Ser Trp Pro
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Lys Ser Arg Asp Tyr Val Pro Tyr Ala Asn Ala Pro Tyr Lys Ala Leu
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Phe Arg Phe Pro Gly Gly Gly Thr Gln Phe Pro Gln Gly Ala Asp Lys
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Tyr Ile Asp Gln Leu Ala Ser Val Ile Pro Met Glu Asn Gly Thr Val
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Arg Thr Ala Leu Asp Thr Gly Cys Gly Val Ala Ser Trp Gly Ala Tyr
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Leu Trp Ser Arg Asn Val Arg Ala Met Ser Phe Ala Pro Arg Asp Ser
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His Glu Ala Gln Val Gln Phe Ala Leu Glu Arg Gly Val Pro Ala Val
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Ile Gly Val Leu Gly Thr Ile Lys Leu Pro Tyr Pro Thr Arg Ala Phe
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Asp Met Ala His Cys Ser Arg Cys Leu Ile Pro Trp Gly Ala Asn Asp
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Gly Met Tyr Leu Met Glu Val Asp Arg Val Leu Arg Pro Gly Gly Tyr
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Trp Ile Leu Ser Gly Pro Pro Ile Asn Trp Lys Val Asn Tyr Lys Ala
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Trp Gln Arg Pro Lys Glu Asp Leu Gln Glu Glu Gln Arg Lys Ile Glu
325 330 335

Glu Ala Ala Lys Leu Leu Cys Trp Glu Lys Lys Tyr Glu His Gly Glu
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Arg Leu Asn Ala Val Pro Pro Arg Ile Ser Ser Gly Ser Ile Ser Gly
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gag 300	ttt Phe	aca Thr	tct Ser	gac Asp	gga 305	cgt Gly	agc Arg	gca Ser	gtt Ala	aat Val	ata Asn	tta Ile	aga Leu	aga Arg	ctg Leu	1323
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aac Asn	ccc Pro	atg Met	gtt Val	cta Leu	gat Asp	aca Thr	cca Pro	atg Met	tgt Cys	tcc Ser	att Ile	tct Ser	atg Met	cct Pro	gaa Glu	1467
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gta Val	gaa Glu	ggg Gly	aca Thr	agt Ser	gag Glu	ttc Phe	acg Thr	ggg Gly	ttg Leu	tca 405	cct Ser	cct Pro	tcg Pro	agt Ser	ggg Gly	1611
tta Leu	acc Thr	gga Gly	aac Asn	ttg Leu	agt Ser	cag Gln	gtt Val	gat Asp	tta Leu	aac Asn	gaa Glu	act Thr	cct Pro	cat His	atg Met	1659
caa Gln	acc Thr	caa Gln	aga Arg	ctt Leu	ctt Leu	act Thr	cgt Arg	atg Met	gtg Val	gct Ala	cta Leu	atg Met	aaa Lys	aca Thr	gtt Val	1707
gag Glu	act Gly	ggt Arg	cga Arg	agg Phe	ttt Phe	cca Pro	tat Tyr	ggg Gly	tca Ser	gag Glu	gag Val	gtt Leu	cta Glu	act Asp	aag Lys	1755

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100 105 110

Ala Val Ala His Glu Ala Phe Leu Tyr Phe Leu Ser Tyr Ile Tyr Thr
115 120 125

Gly Arg Leu Lys Pro Phe Pro Leu Glu Val Ser Thr Cys Val Asp Pro
130 135 140

Val Cys Ser His Asp Cys Cys Arg Pro Ala Ile Asp Phe Val Val Gln
145 150 155 160

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165 170 175

Phe Gln Arg Arg Leu Cys Asn Phe Val Glu Lys Thr Leu Val Glu Asn
180 185 190

Val Leu Pro Ile Leu Met Val Ala Phe Asn Cys Lys Leu Thr Gln Leu
195 200 205

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210 215 220

Cys Ile Glu Lys Glu Val Pro Pro Glu Val Ala Glu Lys Ile Lys Gln
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Leu Thr Arg Met Val Ala Leu Met Lys Thr Val Glu Thr Gly Arg Arg
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Phe Phe Pro Tyr Gly Ser Glu Val Leu Asp Lys Tyr Met Ala Glu Tyr
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465 470 475 480

His Glu Arg Arg Leu Lys Arg Met Arg Tyr Arg Glu Leu Lys Asp Asp
485 490 495

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Leu His Asn Thr Thr
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Asn	Lys	Val	Pro	Lys	His	His	Ala	Ser	Ser	Ser	Ile	Cys	Gly	Gly	Asn	
245																
ggc	agt	gaa	aat	gca	agt	agc	aag	gtc	att	gag	caa	gcg	gcc	gcc	gaa	874
Gly	Ser	Glu	Asn	Ala	Ser	Ser	Lys	Val	Ile	Glu	Gln	Ala	Ala	Ala	Glu	
260																
gcc	acc	atg	cgt	aaa	gcc	cgt	gtc	tcg	gtt	cgt	gct	cga	tcc	gaa	gct	922
Ala	Thr	Met	Arg	Lys	Ala	Arg	Val	Ser	Val	Arg	Ala	Arg	Ser	Glu	Ala	
275																
ccc	atg	tta	agc	gat	gga	tgt	caa	tggt	aga	aaa	tac	gga	caa	aaa	atg	970
Pro	Met	Leu	Ser	Asp	Gly	Cys	Gln	Trp	Arg	Lys	Tyr	Gly	Gln	Lys	Met	
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gcg	aaa	gga	aac	ccg	tgc	cct	cga	gct	tat	tac	cgt	tgc	aca	atg	gct	1018

Ala Lys Gly Asn Pro Cys Pro Arg Ala Tyr Tyr Arg Cys Thr Met Ala	
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gtt gga tgt cct gtt cgc aag caa gtg caa cgt tgc gcg gaa gat aga	1066
Val Gly Cys Pro Val Arg Lys Gln Val Gln Arg Cys Ala Glu Asp Arg	
325 330 335	
acc att ctc ata aca acc tac gaa gga aac cat aac cat cca tta cct	1114
Thr Ile Leu Ile Thr Thr Tyr Glu Gly Asn His Asn His Pro Leu Pro	
340 345 350	
cct gcg gct atg aac atg gct tca act aca aca gca gcc gca agc atg	1162
Pro Ala Ala Met Asn Met Ala Ser Thr Thr Thr Ala Ala Ser Met	
355 360 365	
ctt ctc tca ggc tcc acc atg tcg aac caa gac ggt tta atg aac cca	1210
Leu Leu Ser Gly Ser Thr Met Ser Ser Asn Gln Asp Gly Leu Met Asn Pro	
370 375 380	
aca aat ctc ttg gct cga acc ata tta ccg tgt tcc tca agc atg gct	1258
Thr Asn Leu Leu Ala Arg Thr Ile Leu Pro Cys Ser Ser Ser Met Ala	
385 390 395 400	
act atc tca gcc tct gca cca ttc cca acc att aca tta gac ctc aca	1306
Thr Ile Ser Ala Ser Ala Pro Phe Pro Thr Ile Thr Leu Asp Leu Thr	
405 410 415	
gag tca ccc aac ggg aac aat cca acc aat aac ccg ctg atg caa ttc	1354
Glu Ser Pro Asn Gly Asn Asn Pro Thr Asn Asn Pro Leu Met Gln Phe	
420 425 430	
tct caa cgg tct ggt ttg gtg gag ttg aac caa tcg gtt ttg cct cat	1402
Ser Gln Arg Ser Gly Leu Val Glu Leu Asn Gln Ser Val Leu Pro His	
435 440 445	
atg atg ggt cag gct ttg tac tac aac caa cag tct aag ttt tcg ggt	1450
Met Met Gly Gln Ala Leu Tyr Tyr Asn Gln Gln Ser Lys Phe Ser Gly	
450 455 460	
tta cat atg ccg tct cag ccg cta aac gct ggt gag agt gtt agc gcc	1498
Leu His Met Pro Ser Gln Pro Leu Asn Ala Gly Glu Ser Val Ser Ala	
465 470 475 480	
gct act gcc gca atc gcc tcc aat ccc aac ttt gcc gcg gct cta gct	1546
Ala Thr Ala Ala Ile Ala Ser Asn Pro Asn Phe Ala Ala Ala Leu Ala	
485 490 495	
gca gcc ata act tcg att atc aac ggt tcg aac aat cag cag aat ggg	1594
Ala Ala Ile Thr Ser Ile Ile Asn Gly Ser Asn Asn Gln Gln Asn Gly	
500 505 510	
aac aac aat aac agt aat gtt aca acg agc aac gtt gac aat agg caa	1642
Asn Asn Asn Asn Ser Asn Val Thr Thr Ser Asn Val Asp Asn Arg Gln	
515 520 525	
taa cattttttta taagtttttag ttagggaactt tttatcggtc gattttgttt	1695

tggttttctt ttattacatt attttttagt tacggctttt ttttgtttt tcttttcttt 1755
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Phe Phe Arg Ser Ala Glu Lys Arg Asp Arg Val Ser Arg Glu Glu Gln
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Asn Ile Ile Ala Asp Glu Thr His Arg Val His Val Lys Arg Glu Asn
 50 55 60

Ser Arg Val Asp Asp His Asp Asp Arg Ser Thr Asp His Ile Asn Ile
 65 70 75 80

Gly Leu Asn Leu Leu Thr Ala Asn Thr Gly Ser Asp Glu Ser Met Val
 85 90 95

Asp Asp Gly Leu Ser Val Asp Met Glu Glu Lys Arg Thr Lys Cys Glu
 100 105 110

Asn Ala Gln Leu Arg Glu Glu Leu Lys Lys Ala Ser Glu Asp Asn Gln
 115 120 125

Arg Leu Lys Gln Met Leu Ser Gln Thr Thr Asn Asn Phe Asn Ser Leu
 130 135 140

Gln Met Gln Leu Val Ala Val Met Arg Gln Gln Glu Asp His His His
 145 150 155 160

Leu Ala Thr Thr Glu Asn Asn Asp Asn Val Lys Asn Arg His Glu Val
 165 170 175

Pro Glu Met Val Pro Arg Gln Phe Ile Asp Leu Gly Pro His Ser Asp
 180 185 190

Glu Val Ser Ser Glu Glu Arg Thr Thr Val Arg Ser Gly Ser Pro Pro
 195 200 205

Ser Leu Leu Glu Lys Ser Ser Ser Arg Gln Asn Gly Lys Arg Val Leu
210 215 220

Val Arg Glu Glu Ser Pro Glu Thr Glu Ser Asn Gly Trp Arg Asn Pro
225 230 235 240

Asn Lys Val Pro Lys His His Ala Ser Ser Ser Ile Cys Gly Gly Asn
245 250 255

Gly Ser Glu Asn Ala Ser Ser Lys Val Ile Glu Gln Ala Ala Ala Glu
260 265 270

Ala Thr Met Arg Lys Ala Arg Val Ser Val Arg Ala Arg Ser Glu Ala
275 280 285

Pro Met Leu Ser Asp Gly Cys Gln Trp Arg Lys Tyr Gly Gln Lys Met
290 295 300

Ala Lys Gly Asn Pro Cys Pro Arg Ala Tyr Tyr Arg Cys Thr Met Ala
305 310 315 320

Val Gly Cys Pro Val Arg Lys Gln Val Gln Arg Cys Ala Glu Asp Arg
325 330 335

Thr Ile Leu Ile Thr Thr Tyr Glu Gly Asn His Asn His Pro Leu Pro
340 345 350

Pro Ala Ala Met Asn Met Ala Ser Thr Thr Thr Ala Ala Ala Ser Met
355 360 365

Leu Leu Ser Gly Ser Thr Met Ser Asn Gln Asp Gly Leu Met Asn Pro
370 375 380

Thr Asn Leu Leu Ala Arg Thr Ile Leu Pro Cys Ser Ser Ser Met Ala
385 390 395 400

Thr Ile Ser Ala Ser Ala Pro Phe Pro Thr Ile Thr Leu Asp Leu Thr
405 410 415

Glu Ser Pro Asn Gly Asn Asn Pro Thr Asn Asn Pro Leu Met Gln Phe
420 425 430

Ser Gln Arg Ser Gly Leu Val Glu Leu Asn Gln Ser Val Leu Pro His
435 440 445

Met Met Gly Gln Ala Leu Tyr Tyr Asn Gln Gln Ser Lys Phe Ser Gly
450 455 460

Leu His Met Pro Ser Gln Pro Leu Asn Ala Gly Glu Ser Val Ser Ala
465 470 475 480

Ala Thr Ala Ala Ile Ala Ser Asn Pro Asn Phe Ala Ala Ala Leu Ala
485 490 495

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Met Met Met Phe Asn Glu Met Gly Met Tyr Gly Asn Met Asp Phe Phe
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tct tcc tcc aca tct ctc gat gtg tgt cca tta cca caa gct gaa caa 96
Ser Ser Ser Thr Ser Leu Asp Val Cys Pro Leu Pro Gln Ala Glu Gln
20 25 30

gaa cct gta gtt gaa gat gtc gac tac acc gat gat gag atg gat gtg 144
Glu Pro Val Val Glu Asp Val Asp Tyr Thr Asp Asp Glu Met Asp Val
35 40 45

gat gag ctt gag aag agg atg tgg aga gac aaa atg cgt ttg aaa cgt 192
Asp Glu Leu Glu Lys Arg Met Trp Arg Asp Lys Met Arg Leu Lys Arg
50 55 60

ctc aag gag caa cag agt aag tgt aaa gaa ggc gtc gat ggt tcg aaa 240
Leu Lys Glu Gln Gln Ser Lys Cys Lys Glu Gly Val Asp Gly Ser Lys
65 70 75 80

cag agg cag tcg caa gag caa gct agg agg aag aaa atg tct aga gcc 288
Gln Arg Gln Ser Gln Glu Gln Ala Arg Arg Lys Lys Met Ser Arg Ala
85 90 95

caa gat ggg atc ttg aag tat atg ttg aag atg atg gaa gtt tgt aaa 336
Gln Asp Gly Ile Leu Lys Tyr Met Leu Lys Met Met Glu Val Cys Lys
100 105 110

115
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gct caa ggc ttt gtt tat ggt att att cct gag aag ggt aag cct gtg Ala Gln Gly Phe Val Tyr Gly Ile Ile Pro Glu Lys Gly Lys Pro Val 115 120 125	384
act ggt gct tcg gat aat ttg agg gaa tgg tgg aaa gat aag gtt agg Thr Gly Ala Ser Asp Asn Leu Arg Glu Trp Trp Lys Asp Lys Val Arg 130 135 140	432
ttt gat cgt aat ggt cca gct gct att gct aag tat cag tca gag aat Phe Asp Arg Asn Gly Pro Ala Ala Ile Ala Lys Tyr Gln Ser Glu Asn 145 150 155 160	480
aat att tct gga ggg agt aat gat tgt aac agc ttg gtt ggt cca aca Asn Ile Ser Gly Gly Ser Asn Asp Cys Asn Ser Leu Val Gly Pro Thr 165 170 175	528
ccg cat acg ctt cag gag ctt cag gac acg act ctt ggt tcg ctt tta Pro His Thr Leu Gln Glu Leu Gln Asp Thr Thr Leu Gly Ser Leu Leu 180 185 190	576
tcg gct ttg atg caa cat tgt gat cca ccg cag aga cgg ttt cct ttg Ser Ala Leu Met Gln His Cys Asp Pro Pro Gln Arg Arg Phe Pro Leu 195 200 205	624
gag aaa gga gtt tct cca cct tgg tgg cct aat ggg aat gaa gag tgg Glu Lys Gly Val Ser Pro Trp Trp Pro Asn Gly Asn Glu Glu Trp 210 215 220	672
tgg cct cag ctt ggt tta cca aat gag caa ggt cct cct cct tat aag Trp Pro Gln Leu Gly Leu Pro Asn Glu Gln Gly Pro Pro Pro Tyr Lys 225 230 235 240	720
aag cct cat gat ttg aag aaa gct tgg aaa gtc ggt gtt tta act gcg Lys Pro His Asp Leu Lys Lys Ala Trp Lys Val Gly Val Leu Thr Ala 245 250 255	768
gtg atc aag cat atg tcg ccg gat att gcg aag atc cgt aag ctt gtg Val Ile Lys His Met Ser Pro Asp Ile Ala Lys Ile Arg Lys Leu Val 260 265 270	816
agg caa tca aaa tgc ttg cag gat aag atg acg gcg aaa gag agt gct Arg Gln Ser Lys Cys Leu Gln Asp Lys Met Thr Ala Lys Glu Ser Ala 275 280 285	864
act tgg ctt gcc att att aac caa gaa gag gtt gtg gct cgg gag ctt Thr Trp Leu Ala Ile Ile Asn Gln Glu Glu Val Val Ala Arg Glu Leu 290 295 300	912
tat ccc gag tca tgc cct cct ctt tct tct tct tca tca tta gga agc Tyr Pro Glu Ser Cys Pro Pro Leu Ser Ser Ser Ser Ser Leu Gly Ser 305 310 315 320	960
ggg tcg ctt ctc att aat gat tgt agc gag tat gac gtt gaa ggt ttc Gly Ser Leu Leu Ile Asn Asp Cys Ser Glu Tyr Asp Val Glu Gly Phe 325 330 335	1008
gag aag gaa caa cat ggt ttc gat gtg gaa gag cgg aaa cca gag ata	1056

Glu Lys Glu Gln His Gly Phe Asp Val Glu Glu Arg Lys Pro Glu Ile	340	345	350	
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Val Met Met His Pro Leu Ala Ser Phe Gly Val Ala Lys Met Gln His	355	360	365	
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Phe Pro Ile Lys Glu Glu Val Ala Thr Thr Val Asn Leu Glu Phe Thr	370	375	380	
aga aag agg aag cag aac aat gat atg aat gtt atg gta atg gac aga				1200
Arg Lys Arg Lys Gln Asn Asn Asp Met Asn Val Met Val Met Asp Arg	385	390	395	400
tca gca ggt tac act tgt gag aat ggt cag tgt cct cac agc aaa atg				1248
Ser Ala Gly Tyr Thr Cys Glu Asn Gly Gln Cys Pro His Ser Lys Met	405	410	415	
aat ctt gga ttt caa gac agg agt tca agg gac aac cac cag atg gtt				1296
Asn Leu Gly Phe Phe Gln Asp Arg Ser Ser Arg Asp Asn His Gln Met Val	420	425	430	
tgt cca tat aga gac aat cgt tta gcg tat gga gca tcc aag ttt cat				1344
Cys Pro Tyr Arg Asp Asn Arg Leu Ala Tyr Gly Ala Ser Lys Phe His	435	440	445	
atg ggt gga atg aaa cta gta gtt cct cag caa cca gtc caa ccg atc				1392
Met Gly Gly Met Lys Leu Val Val Pro Gln Gln Pro Val Gln Pro Ile	450	455	460	
gac cta tcg gcc gtt gga gtt ccg gaa aac ggg cag aag atg atc acc				1440
Asp Leu Ser Gly Val Gly Val Pro Glu Asn Gly Gln Lys Met Ile Thr	465	470	475	480
gag ctt atg gcc atg tac gac aga aat gtc caa agc aac caa acg cct				1488
Glu Leu Met Ala Met Tyr Asp Arg Asn Val Gln Ser Asn Gln Thr Pro	485	490	495	
cct act ttg atg gaa aac caa agc atg gtc att gat gca aaa gca gct				1536
Pro Thr Leu Met Glu Asn Gln Ser Met Val Ile Asp Ala Lys Ala Ala	500	505	510	
cag aat cag cag ctg aat ttc aac agt gcc aat caa atg ttt atg caa				1584
Gln Asn Gln Gln Leu Asn Phe Asn Ser Gly Asn Gln Met Phe Met Gln	515	520	525	
caa ggg acg aac aac ggg gtt aac aat ccg ttc cag atg gtg ttt gat				1632
Gln Gly Thr Asn Asn Gly Val Asn Asn Arg Phe Gln Met Val Phe Asp	530	535	540	
tcg aca cca ttc gat atg gca gca ttc gat tac aga gat gat tgg caa				1680
Ser Thr Pro Phe Asp Met Ala Ala Phe Asp Tyr Arg Asp Asp Trp Gln	545	550	555	560
acc gga gca atg gaa gga atg ggg aag cag cag cag cag cag cag				1728
Thr Gly Ala Met Glu Gly Met Gly Lys Gln Gln Gln Gln Gln Gln				

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 Gln Gln Asp Val Ser Ile Trp Phe
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 35 40 45
 Asp Glu Leu Glu Lys Arg Met Trp Arg Asp Lys Met Arg Leu Lys Arg
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 Leu Lys Glu Gln Gln Ser Lys Cys Lys Glu Gly Val Asp Gly Ser Lys
 65 70 75 80
 Gln Arg Gln Ser Gln Glu Gln Ala Arg Arg Lys Lys Met Ser Arg Ala
 85 90 95
 Gln Asp Gly Ile Leu Lys Tyr Met Leu Lys Met Met Glu Val Cys Lys
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 Ala Gln Gly Phe Val Tyr Gly Ile Ile Pro Glu Lys Gly Lys Pro Val
 115 120 125
 Thr Gly Ala Ser Asp Asn Leu Arg Glu Trp Trp Lys Asp Lys Val Arg
 130 135 140
 Phe Asp Arg Asn Gly Pro Ala Ala Ile Ala Lys Tyr Gln Ser Glu Asn
 145 150 155 160
 Asn Ile Ser Gly Gly Ser Asn Asp Cys Asn Ser Leu Val Gly Pro Thr
 165 170 175
 Pro His Thr Leu Gln Glu Leu Gln Asp Thr Thr Leu Gly Ser Leu Leu
 180 185 190

Ser Ala Leu Met Gln His Cys Asp Pro Pro Gln Arg Arg Phe Pro Leu
195 200 205

Glu Lys Gly Val Ser Pro Pro Trp Trp Pro Asn Gly Asn Glu Glu Trp
210 215 220

Trp Pro Gln Leu Gly Leu Pro Asn Glu Gln Gly Pro Pro Pro Tyr Lys
225 230 235 240

Lys Pro His Asp Leu Lys Lys Ala Trp Lys Val Gly Val Leu Thr Ala
245 250 255

Val Ile Lys His Met Ser Pro Asp Ile Ala Lys Ile Arg Lys Leu Val
260 265 270

Arg Gln Ser Lys Cys Leu Gln Asp Lys Met Thr Ala Lys Glu Ser Ala
275 280 285

Thr Trp Leu Ala Ile Ile Asn Gln Glu Glu Val Val Ala Arg Glu Leu
290 295 300

Tyr Pro Glu Ser Cys Pro Pro Leu Ser Ser Ser Ser Ser Leu Gly Ser
305 310 315 320

Gly Ser Leu Leu Ile Asn Asp Cys Ser Glu Tyr Asp Val Glu Gly Phe
325 330 335

Glu Lys Glu Gln His Gly Phe Asp Val Glu Glu Arg Lys Pro Glu Ile
340 345 350

Val Met Met His Pro Leu Ala Ser Phe Gly Val Ala Lys Met Gln His
355 360 365

Phe Pro Ile Lys Glu Glu Val Ala Ala Thr Thr Val Asn Leu Glu Phe Thr
370 375 380

Arg Lys Arg Lys Gln Asn Asn Asp Met Asn Val Met Val Met Asp Arg
385 390 395 400

Ser Ala Gly Tyr Thr Cys Glu Asn Gly Gln Cys Pro His Ser Lys Met
405 410 415

Asn Leu Gly Phe Gln Asp Arg Ser Ser Arg Asp Asn His Gln Met Val

420

425

430

Cys Pro Tyr Arg Asp Asn Arg Leu Ala Tyr Gly Ala Ser Lys Phe His
435 440 445

Met Gly Gly Met Lys Leu Val Val Pro Gln Gln Pro Val Gln Pro Ile
450 455 460

Asp Leu Ser Gly Val Gly Val Pro Glu Asn Gly Gln Lys Met Ile Thr
465 470 475 480

Glu Leu Met Ala Met Tyr Asp Arg Asn Val Gln Ser Asn Gln Thr Pro
485 490 495

Pro Thr Leu Met Glu Asn Gln Ser Met Val Ile Asp Ala Lys Ala Ala
500 505 510

Gln Asn Gln Gln Leu Asn Phe Asn Ser Gly Asn Gln Met Phe Met Gln
515 520 525

Gln Gly Thr Asn Asn Gly Val Asn Asn Arg Phe Gln Met Val Phe Asp
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Ser Thr Pro Phe Asp Met Ala Ala Phe Asp Tyr Arg Asp Asp Trp Gln
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ttttctctca tcatttttat tctctctctt cttctcgtgt tcattctctc aggttaca 178
atg atg ttt aat gag atg gga atg tgt gga aac atg gat ttc ttc tct 226
Met Met Phe Asn Glu Met Gly Met Cys Gly Asn Met Asp Phe Ser
1 5 10 15

tct gga tca ctt ggt gaa gtt gat ttc tgt cct gtt cca caa gct gag	274
Ser Gly Ser Leu Gly Glu Val Asp Phe Cys Pro Val Pro Gln Ala Glu	
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cct gat tcc att gtt gaa gat gac tat act gat gat gag att gat gtt	322
Pro Asp Ser Ile Val Glu Asp Asp Tyr Thr Asp Asp Glu Ile Asp Val	
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gat gaa ttg gag agg agg atg tgg aga gac aaa atg cgg ctt aaa cgt	370
Asp Glu Leu Glu Arg Arg Met Trp Arg Asp Lys Met Arg Leu Lys Arg	
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ctc aag gag cag gat aag ggt aaa gaa ggt gtt gat gct gct aaa cag	418
Leu Lys Glu Gln Asp Lys Gly Lys Glu Gly Val Asp Ala Ala Lys Gln	
65 70 75 80	
agg cag tct caa gag caa gct agg agg aag aaa atg tct aga gct caa	466
Arg Gln Ser Gln Glu Gln Ala Arg Arg Lys Lys Met Ser Arg Ala Gln	
85 90 95	
gat ggg atc ttg aag tat atg ttg aag atg atg gaa gtt tgt aaa gct	514
Asp Gly Ile Leu Lys Tyr Met Leu Lys Met Met Glu Val Cys Lys Ala	
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Gln Gly Phe Val Tyr Gly Ile Ile Pro Glu Asn Gly Lys Pro Val Thr	
115 120 125	
ggg gct tct gat aat tta agg gag tgg tgg aaa gat aag gtt agg ttt	610
Gly Ala Ser Asp Asn Leu Arg Glu Trp Trp Lys Asp Lys Val Arg Phe	
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Asp Arg Asn Gly Pro Ala Ala Ile Thr Lys Tyr Gln Ala Glu Asn Asn	
145 150 155 160	
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Ile Pro Gly Ile His Glu Gly Asn Asn Pro Ile Gly Pro Thr Pro His	
165 170 175	
acc ttg caa gag ctt caa gac acg act ctt gga tcg ctt ttg tct gcg	754
Thr Leu Gln Glu Leu Gln Asp Thr Thr Leu Gly Ser Leu Leu Ser Ala	
180 185 190	
ttg atg caa cac tgt gat cct cct cag aga cgt ttt cct ttg gag aaa	802
Leu Met Gln His Cys Asp Pro Pro Gln Arg Arg Phe Pro Leu Glu Lys	
195 200 205	
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Gly Val Pro Pro Pro Trp Trp Pro Asn Gly Lys Glu Asp Trp Trp Pro	
210 215 220	
caa ctt ggt ttg cct aaa gat caa ggt cct gca cct tac aag aag cct	898
Gln Leu Gly Leu Pro Lys Asp Gln Gly Pro Ala Pro Tyr Lys Lys Pro	
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His Asp Leu Lys Lys Ala Trp Lys Val Gly Val Leu Thr Ala Val Ile	
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Lys His Met Phe Pro Asp Ile Ala Lys Ile Arg Lys Leu Val Arg Gln	
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Ser Lys Cys Leu Gln Asp Lys Met Thr Ala Lys Glu Ser Ala Thr Trp	
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Leu Ala Ile Ile Asn Gln Glu Ser Leu Ala Arg Glu Leu Tyr Pro	
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Glu Ser Cys Pro Pro Leu Ser Leu Ser Gly Gly Ser Cys Ser Leu Leu	
305 310 315 320	
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Met Asn Asp Cys Ser Gln Tyr Asp Val Glu Gly Phe Glu Lys Glu Ser	
325 330 335	
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His Tyr Glu Val Glu Glu Leu Lys Pro Glu Lys Val Met Asn Ser Ser	
340 345 350	
aac ttt ggg atg gtt gct aaa atg cat gac ttt cct gtc aaa gaa gaa	1282
Asn Phe Gly Met Val Ala Lys Met His Asp Phe Pro Val Lys Glu Glu	
355 360 365	
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Val Pro Ala Gly Asn Ser Glu Phe Met Arg Lys Arg Lys Pro Asn Arg	
370 375 380	
gat ctg aac act att atg gac aga acc gtt ttc acc tgc gag aat ctt	1378
Asp Leu Asn Thr Ile Met Asp Arg Thr Val Phe Thr Cys Glu Asn Leu	
385 390 395 400	
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Gly Cys Ala His Ser Glu Ile Ser Arg Gly Phe Leu Asp Arg Asn Ser	
405 410 415	
aga gac aac cat caa ctg gca tgt cca cat cga gac agt cgc tta ccg	1474
Arg Asp Asn His Gln Leu Ala Cys Pro His Arg Asp Ser Arg Leu Pro	
420 425 430	
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Tyr Gly Ala Ala Pro Ser Arg Phe His Val Asn Glu Val Lys Pro Val	
435 440 445	
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450 455 460	
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Asp Leu Thr Gly Ile Val Pro Glu Asp Gly Gln Lys Met Ile Ser Glu	

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Leu Met Ser Met Tyr Asp Arg Asn Val Gln Ser Asn Gln Thr Ser Met				
	485	490	495	
gtc atg gaa aat caa agc gtg tca ctg ctt caa ccc aca gtc cat aac				1714
Val Met Glu Asn Gln Ser Val Ser Leu Leu Gln Pro Thr Val His Asn				
	500	505	510	
cat caa gaa cat ctc cag ttc cca gga aac atg gtg gaa gga agt ttc				1762
His Gln Glu His Leu Gln Phe Pro Gly Asn Met Val Glu Gly Ser Phe				
	515	520	525	
ttt gaa gac ttg aac atc cca aac aga gca aac aac aac aac agc agc				1810
Phe Glu Asp Leu Asn Ile Pro Asn Arg Ala Asn Asn Asn Asn Ser Ser				
	530	535	540	
aac aat caa acg ttt ttt caa ggg aac aac aac aac aac aat gtg ttt				1858
Asn Asn Gln Thr Phe Phe Gln Gly Asn Asn Asn Asn Asn Val Phe				
	545	550	555	560
aag ttc gac act gca gat cac aac aac ttt gaa gct gca cat aac aac				1906
Lys Phe Asp Thr Ala Asp His Asn Asn Phe Glu Ala Ala His Asn Asn				
	565	570	575	
aac aat aac agt agc ggc aac agg ttc cag ctt gtg ttt gat tcc aca				1954
Asn Asn Asn Ser Ser Ser Gly Asn Arg Phe Gln Leu Val Phe Asp Ser Thr				
	580	585	590	
cag ttc gac atg gcg tca ttc gat tac aga gat gat atg tcg atg cca				2002
Pro Phe Asp Met Ala Ser Phe Asp Tyr Arg Asp Asp Met Ser Met Pro				
	595	600	605	
gga gta gta gga acg atg gat gga atg cag cag aag cag caa gat gta				2050
Gly Val Val Gly Thr Met Asp Gly Met Gln Gln Lys Gln Gln Asp Val				
	610	615	620	
tcc ata tgg ttc taa agtcttggtta gtagatttca tcttctcttta tttttatctt				2105
Ser Ile Trp Phe				
625				
ttgtgttctt acattcactc aaccatgtaa tattttttcc tgggtctctc tgtctctatc				2165
gcttggtatg atgtgtctgt aagagtctct aaaaactctc tgttactgtg tgtctttgtc				2225
toggcttggt gaatctctct gtcacatca gcttttagtt acacaccoga cttggggatg				2285
aacgaacact aaatgtaagt ttcca				2310
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1 5 10 15				

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20 25 30

Pro Asp Ser Ile Val Glu Asp Asp Tyr Thr Asp Asp Glu Ile Asp Val
35 40 45

Asp Glu Leu Glu Arg Arg Met Trp Arg Asp Lys Met Arg Leu Lys Arg
50 55 60

Leu Lys Glu Gln Asp Lys Gly Lys Glu Gly Val Asp Ala Ala Lys Gln
65 70 75 80

Arg Gln Ser Gln Glu Gln Ala Arg Arg Lys Lys Met Ser Arg Ala Gln
85 90 95

Asp Gly Ile Leu Lys Tyr Met Leu Lys Met Met Glu Val Cys Lys Ala
100 105 110

Gln Gly Phe Val Tyr Gly Ile Ile Pro Glu Asn Gly Lys Pro Val Thr
115 120 125

Gly Ala Ser Asp Asn Leu Arg Glu Trp Trp Lys Asp Lys Val Arg Phe
130 135 140

Asp Arg Asn Gly Pro Ala Ala Ile Thr Lys Tyr Gln Ala Glu Asn Asn
145 150 155 160

Ile Pro Gly Ile His Glu Gly Asn Asn Pro Ile Gly Pro Thr Pro His
165 170 175

Thr Leu Gln Glu Leu Gln Asp Thr Thr Leu Gly Ser Leu Leu Ser Ala
180 185 190

Leu Met Gln His Cys Asp Pro Pro Gln Arg Arg Phe Pro Leu Glu Lys
195 200 205

Gly Val Pro Pro Pro Trp Trp Pro Asn Gly Lys Glu Asp Trp Trp Pro
210 215 220

Gln Leu Gly Leu Pro Lys Asp Gln Gly Pro Ala Pro Tyr Lys Lys Pro
225 230 235 240

His Asp Leu Lys Lys Ala Trp Lys Val Gly Val Leu Thr Ala Val Ile

245

250

255

Lys His Met Phe Pro Asp Ile Ala Lys Ile Arg Lys Leu Val Arg Gln
260 265 270

Ser Lys Cys Leu Gln Asp Lys Met Thr Ala Lys Glu Ser Ala Thr Trp
275 280 285

Leu Ala Ile Ile Asn Gln Glu Glu Ser Leu Ala Arg Glu Leu Tyr Pro
290 295 300

Glu Ser Cys Pro Pro Leu Ser Leu Ser Gly Gly Ser Cys Ser Leu Leu
305 310 315 320

Met Asn Asp Cys Ser Gln Tyr Asp Val Glu Gly Phe Glu Lys Glu Ser
325 330 335

His Tyr Glu Val Glu Glu Leu Lys Pro Glu Lys Val Met Asn Ser Ser
340 345 350

Asn Phe Gly Met Val Ala Lys Met His Asp Phe Pro Val Lys Glu Glu
355 360 365

Val Pro Ala Gly Asn Ser Glu Phe Met Arg Lys Arg Lys Pro Asn Arg
370 375 380

Asp Leu Asn Thr Ile Met Asp Arg Thr Val Phe Thr Cys Glu Asn Leu
385 390 395 400

Gly Cys Ala His Ser Glu Ile Ser Arg Gly Phe Leu Asp Arg Asn Ser
405 410 415

Arg Asp Asn His Gln Leu Ala Cys Pro His Arg Asp Ser Arg Leu Pro
420 425 430

Tyr Gly Ala Ala Pro Ser Arg Phe His Val Asn Glu Val Lys Pro Val
435 440 445

Val Gly Phe Pro Gln Pro Arg Pro Val Asn Ser Val Ala Gln Pro Ile
450 455 460

Asp Leu Thr Gly Ile Val Pro Glu Asp Gly Gln Lys Met Ile Ser Glu
465 470 475 480

Leu Met Ser Met Tyr Asp Arg Asn Val Gln Ser Asn Gln Thr Ser Met
485 490 495

Val Met Glu Asn Gln Ser Val Ser Leu Leu Gln Pro Thr Val His Asn
500 505 510

His Gln Glu His Leu Gln Phe Pro Gly Asn Met Val Glu Gly Ser Phe
515 520 525

Phe Glu Asp Leu Asn Ile Pro Asn Arg Ala Asn Asn Asn Asn Ser Ser
530 535 540

Asn Asn Gln Thr Phe Phe Gln Gly Asn Asn Asn Asn Asn Val Phe
545 550 555 560

Lys Phe Asp Thr Ala Asp His Asn Asn Phe Glu Ala Ala His Asn Asn
565 570 575

Asn Asn Asn Ser Ser Gly Asn Arg Phe Gln Leu Val Phe Asp Ser Thr
580 585 590

Pro Phe Asp Met Ala Ser Phe Asp Tyr Arg Asp Asp Met Ser Met Pro
595 600 605

Gly Val Val Gly Thr Met Asp Gly Met Gln Gln Lys Gln Gln Asp Val
610 615 620

Ser Ile Trp Phe
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Met Ala Asp Pro Asn Asn Pro Ile Thr Glu Pro Lys Ala Ile
1 5 10

atc caa tct tct act tca tcg tca gtt act att gtg cca gtt ccc acg 158
Ile Gln Ser Ser Thr Ser Ser Val Thr Ile Val Pro Val Pro Thr
15 20 25 30

tgc ggt gac agc ctc tct gac tct gcc acg tgt gaa aac cct tgt cca 206

Cys	Gly	Asp	Ser	Leu	Ser	Asp	Ser	Ala	Thr	Cys	Glu	Asn	Pro	Cys	Pro	
				35					40					45		
ctt	gat	act	atc	act	act	act	act	act	act	gtt	tgt	ttt	gcg	gct	cct	254
Leu	Asp	Thr	Ile	Thr	Thr	Thr	Thr	Thr	Thr	Val	Cys	Phe	Ala	Ala	Pro	
			50						55				60			
tct	tct	act	gca	agt	ggt	aat	gat	att	aat	act	tta	atg	gcc	act	gac	302
Ser	Ser	Thr	Ala	Ser	Gly	Asn	Asp	Ile	Asn	Thr	Leu	Met	Ala	Thr	Asp	
			65									75				
acc	gac	atc	tct	cgc	cgg	aaa	aag	aat	ccg	gtt	tat	cgg	gga	att	cgt	350
Thr	Asp	Ile	Ser	Arg	Arg	Lys	Lys	Asn	Pro	Val	Tyr	Arg	Gly	Ile	Arg	
			80				85					90				
tgt	cgg	agt	gga	aaa	tgg	gtg	tct	gaa	atc	cga	gag	cct	aaa	aag	act	398
Cys	Arg	Ser	Gly	Lys	Trp	Val	Ser	Glu	Ile	Arg	Glu	Pro	Lys	Lys	Thr	
95					100					105					110	
aca	cgt	gtc	tgg	ctt	ggg	act	tat	ccg	acg	ccg	gag	atg	gct	gct	gcc	446
Thr	Arg	Val	Trp	Leu	Gly	Thr	Tyr	Pro	Thr	Pro	Glu	Met	Ala	Ala	Ala	
				115					120					125		
gca	tat	gac	gtg	cgc	cgc	tta	gct	ctt	aaa	ggt	gga	gac	act	ctc	ttg	494
Ala	Tyr	Asp	Val	Ala	Ala	Leu	Ala	Leu	Lys	Gly	Gly	Asp	Thr	Leu	Leu	
			130					135					140			
aac	ttc	cgc	gat	tcc	ctg	gga	tct	tac	ccc	att	ccc	ctt	tcc	tct	tcc	542
Asn	Phe	Pro	Asp	Ser	Leu	Gly	Ser	Tyr	Pro	Ile	Pro	Leu	Ser	Ser	Ser	
		145					150					155				
gca	gct	cat	atc	aga	tgc	gct	gca	gct	cgc	gct	gct	cgc	act	agg	ggt	590
Ala	Ala	His	Ile	Arg	Cys	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Thr	Arg	Gly	
		160				165						170				
cgc	gct	gga	cgc	gcc	gtg	aag	gta	ggt	caa	aag	aag	gaa	gat	aaa	ggt	638
Ala	Ala	Gly	Ala	Ala	Val	Lys	Val	Gly	Gln	Lys	Lys	Glu	Asp	Lys	Val	
			175		180					185				190		
tat	gat	acg	cgc	gaa	tct	tca	act	atg	ggg	ttt	gtg	gat	gaa	gaa	gag	686
Tyr	Asp	Thr	Ala	Glu	Ser	Ser	Thr	Met	Gly	Phe	Val	Asp	Glu	Glu	Glu	
			195						200				205			
cta	ttg	aac	atg	cct	ggt	ttg	cta	cgc	gat	atg	gcc	aaa	ggg	atg	atg	734
Leu	Leu	Asn	Met	Pro	Gly	Leu	Leu	Ala	Asp	Met	Ala	Lys	Gly	Met	Met	
			210					215					220			
gtg	gct	cca	cgc	tgg	atg	gga	tct	cca	cgc	tca	gat	gat	tgc	cca	gag	782
Val	Ala	Pro	Pro	Trp	Met	Gly	Ser	Pro	Pro	Pro	Ser	Asp	Asp	Ser	Glu	
		225					230					235				
aat	tct	gat	gga	gag	agc	ttg	tgg	agc	tat	tga	tcgattgaaa	gcagtttaaat				835
Asn	Ser	Asp	Gly	Glu	Ser	Leu	Trp	Ser	Tyr							
			240			245										
atctttttttg	gac	ctctttgt	tcacgttttat	gctagtcatc	tttgtttctt	tatcctatga										899

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 aaaaaaaa 963

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Met Ala Asp Pro Asn Asn Pro Ile Thr Glu Pro Lys Ala Ile Ile Gln
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 20 25 30

Asp Ser Leu Ser Asp Ser Ala Thr Cys Glu Asn Pro Cys Pro Leu Asp
 35 40 45

Thr Ile Thr Thr Thr Thr Thr Thr Val Cys Phe Ala Ala Pro Ser Ser
 50 55 60

Thr Ala Ser Gly Asn Asp Ile Asn Thr Leu Met Ala Thr Asp Thr Asp
 65 70 75 80

Ile Ser Arg Arg Lys Lys Asn Pro Val Tyr Arg Gly Ile Arg Cys Arg
 85 90 95

Ser Gly Lys Trp Val Ser Glu Ile Arg Glu Pro Lys Lys Thr Thr Arg
 100 105 110

Val Trp Leu Gly Thr Tyr Pro Thr Pro Glu Met Ala Ala Ala Tyr
 115 120 125

Asp Val Ala Ala Leu Ala Leu Lys Gly Gly Asp Thr Leu Leu Asn Phe
 130 135 140

Pro Asp Ser Leu Gly Ser Tyr Pro Ile Pro Leu Ser Ser Ser Ala Ala
 145 150 155 160

His Ile Arg Cys Ala Ala Ala Ala Ala Ala Thr Arg Gly Ala Ala
 165 170 175

Gly Ala Ala Val Lys Val Gly Gln Lys Lys Glu Asp Lys Val Tyr Asp
 180 185 190

Thr Ala Glu Ser Ser Thr Met Gly Phe Val Asp Glu Glu Glu Leu Leu
 195 200 205

Asn Met Pro Gly Leu Leu Ala Asp Met Ala Lys Gly Met Met Val Ala
210 215 220

Pro Pro Trp Met Gly Ser Pro Pro Ser Asp Asp Ser Pro Glu Asn Ser
225 230 235 240

Asp Gly Glu Ser Leu Trp Ser Tyr
245

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ctc tcc atc tct act act cca aag ccg aca acg acg acg gag aag aaa 98
Leu Ser Ile Ser Thr Thr Pro Lys Pro Thr Thr Thr Glu Lys
20 25 30
ctc tct tct ccg ccg gcg acg tcg atg cgt ctc tac aga atg gga agc 146
Leu Ser Ser Pro Pro Ala Thr Ser Met Arg Leu Tyr Arg Met Gly Ser
35 40 45
ggc gga agc agc gtc gtt ttg gat tca gag aac ggc gtc gag acc gag 194
Gly Gly Ser Ser Val Val Leu Asp Ser Glu Asn Gly Val Glu Thr Glu
50 55 60
tca cgt aag ctt cct tcg tcg aaa tat aaa ggc gtt gtg cct cag cct 242
Ser Arg Lys Leu Pro Ser Ser Lys Tyr Lys Gly Val Val Pro Gln Pro
65 70 75
aac gga aga tgg gga gct cag att tac gag aag cat cag cga gtt tgg 290
Asn Gly Arg Trp Gly Ala Gln Ile Tyr Glu Lys His Gln Arg Val Trp
80 85 90 95
ctc ggt act ttc aac gag gaa gaa gaa gct gcg tct tct tac gac atc 338
Leu Gly Thr Phe Asn Glu Glu Glu Glu Ala Ala Ser Ser Tyr Asp Ile
100 105 110
gcc gtg agg aga ttc cgc ggc cgc gac gcc gtc act aac ttc aaa tct 386
Ala Val Arg Arg Phe Arg Gly Arg Asp Ala Val Thr Asn Phe Lys Ser
115 120 125
caa gtt gat gga aac gac gcc gaa tcg gct ttt ctt gac gct cat tct 434
Gln Val Asp Gly Asn Asp Ala Glu Ser Ala Phe Leu Asp Ala His Ser
130 135 140
aaa gct gag atc gtg gat atg ttg agg aaa cac act tac gcc gat gag 482
Lys Ala Glu Ile Val Asp Met Leu Arg Lys His Thr Tyr Ala Asp Glu
145 150 155

ttt gag cag agt aga cgg aag ttt gtt aac ggc gac gga aaa cgc tct	530
Phe Glu Gln Ser Arg Arg Lys Phe Val Asn Gly Asp Gly Lys Arg Ser	
160 165 170 175	
ggg ttg gag acg gcg acg tac gga aac gac gct gtt ttg aga cgc cgt	578
Gly Leu Glu Thr Ala Thr Tyr Gly Asn Asp Ala Val Leu Arg Ala Arg	
180 185 190	
gag gtt ttg ttc gag aag act gtt acg cgg agc gac gtc ggg aag ctg	626
Glu Val Leu Phe Glu Lys Thr Val Thr Pro Ser Asp Val Gly Lys Leu	
195 200 205	
aac cgt tta gtg ata cgg aaa caa cac cgg gag aag cat ttt cgg tta	674
Asn Arg Leu Val Ile Pro Lys Gln His Ala Glu Lys His Phe Pro Leu	
210 215 220	
ccg cgg atg acg acg cgg atg ggg atg aat cgg tct cgg acg aaa ggc	722
Pro Ala Met Thr Thr Ala Met Gly Met Asn Pro Ser Pro Thr Lys Gly	
225 230 235	
gtt ttg att aac ttg gaa gat aga aca ggg aaa gtg tgg cgg ttc cgt	770
Val Leu Ile Asn Leu Glu Asp Arg Thr Gly Lys Val Trp Arg Phe Arg	
240 245 250 255	
tac agt tac tgg aac agc agt caa agt tac gtg ttg acc aag ggc tgg	818
Tyr Ser Tyr Trp Asn Ser Ser Gln Ser Tyr Val Leu Thr Lys Gly Trp	
260 265 270	
agc cgg ttc gtt aaa gag aag aat ctt cga gcc ggt gat gtg gtt tgt	866
Ser Arg Phe Val Lys Glu Lys Asn Leu Arg Ala Gly Asp Val Val Cys	
275 280 285	
ttc gag aga tca acc gga cca gac cgg caa ttg tat atc cac tgg aaa	914
Phe Glu Arg Ser Thr Gly Pro Asp Arg Gln Leu Tyr Ile His Trp Lys	
290 295 300	
gtc cgg tct agt cgg gtt cag act gtg gtt agg cta ttc gga gtc aac	962
Val Arg Ser Ser Pro Val Gln Thr Val Val Arg Leu Phe Gly Val Asn	
305 310 315	
att ttc aat gtg agt aac gag aaa cca aac gac gtc gca gta gag tgt	1010
Ile Phe Asn Val Ser Asn Glu Lys Pro Asn Asp Val Ala Val Glu Cys	
320 325 330 335	
gtt ggc aag aag aga tct cgg gaa gat gat ttg ttt tgg tta ggg tgt	1058
Val Gly Lys Lys Arg Ser Arg Glu Asp Asp Leu Phe Ser Leu Gly Cys	
340 345 350	
tcc aag aag cag gcg att atc aac atc ttg tga caaattcttt ttttttggtt	1111
Ser Lys Lys Gln Ala Ile Ile Asn Ile Leu	
355 360	
ttttttctca attgttttct cttttttcaa ttttttgtat tgaatgaca agttgtaaat	1171
taggacaaga caagaaaaaa tgacaactag acaaaatagt ttttgtttaa aaaaaaaa	1231

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1239

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Ser Ile Ser Thr Thr Pro Lys Pro Thr Thr Thr Glu Lys Lys Leu
20 25 30

Ser Ser Pro Pro Ala Thr Ser Met Arg Leu Tyr Arg Met Gly Ser Gly
35 40 45

Gly Ser Ser Val Val Leu Asp Ser Glu Asn Gly Val Glu Thr Glu Ser
50 55 60

Arg Lys Leu Pro Ser Ser Lys Tyr Lys Gly Val Val Pro Gln Pro Asn
65 70 75 80

Gly Arg Trp Gly Ala Gln Ile Tyr Glu Lys His Gln Arg Val Trp Leu
85 90 95

Gly Thr Phe Asn Glu Glu Glu Glu Ala Ala Ser Ser Tyr Asp Ile Ala
100 105 110

Val Arg Arg Phe Arg Gly Arg Asp Ala Val Thr Asn Phe Lys Ser Gln
115 120 125

Val Asp Gly Asn Asp Ala Glu Ser Ala Phe Leu Asp Ala His Ser Lys
130 135 140

Ala Glu Ile Val Asp Met Leu Arg Lys His Thr Tyr Ala Asp Glu Phe
145 150 155 160

Glu Gln Ser Arg Arg Lys Phe Val Asn Gly Asp Gly Lys Arg Ser Gly
165 170 175

Leu Glu Thr Ala Thr Tyr Gly Asn Asp Ala Val Leu Arg Ala Arg Glu
180 185 190

Val Leu Phe Glu Lys Thr Val Thr Pro Ser Asp Val Gly Lys Leu Asn
195 200 205

Arg Leu Val Ile Pro Lys Gln His Ala Glu Lys His Phe Pro Leu Pro
210 215 220

Ala Met Thr Thr Ala Met Gly Met Asn Pro Ser Pro Thr Lys Gly Val
225 230 235 240

Leu Ile Asn Leu Glu Asp Arg Thr Gly Lys Val Trp Arg Phe Arg Tyr
245 250 255

Ser Tyr Trp Asn Ser Ser Gln Ser Tyr Val Leu Thr Lys Gly Trp Ser
260 265 270

Arg Phe Val Lys Glu Lys Asn Leu Arg Ala Gly Asp Val Val Cys Phe
275 280 285

Glu Arg Ser Thr Gly Pro Asp Arg Gln Leu Tyr Ile His Trp Lys Val
290 295 300

Arg Ser Ser Pro Val Gln Thr Val Val Arg Leu Phe Gly Val Asn Ile
305 310 315 320

Phe Asn Val Ser Asn Glu Lys Pro Asn Asp Val Ala Val Glu Cys Val
325 330 335

Gly Lys Lys Arg Ser Arg Glu Asp Asp Leu Phe Ser Leu Gly Cys Ser
340 345 350

Lys Lys Gln Ala Ile Ile Asn Ile Leu
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<222> (52)..(783) <223> G1006

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Met Tyr
1

gga cag tgc aat ata gaa tcc gac tac gct ttg ttg gag tgc ata aca 105
Gly Gln Cys Asn Ile Glu Ser Asp Tyr Ala Leu Leu Glu Ser Ile Thr
5 10 15

cgt cac ttg cta gga gga gga gga gag aac gag ctg cga ctc aat gag 153
Arg His Leu Leu Gly Gly Gly Glu Asn Glu Leu Arg Leu Asn Glu
20 25 30

tca aca ccg agt tgc tgt ttc aca gag agt tgg gga ggt ttg cca ttg 201

Ser Thr Pro Ser Ser Cys Phe Thr Glu Ser Trp Gly Gly Leu Pro Leu	
35 40 45 50	
aaa gag aat gat tca gag gac atg ttg gtg tac gga ctc ctc aaa gat	249
Lys Glu Asn Asp Ser Glu Asp Met Leu Val Tyr Gly Leu Leu Lys Asp	
55 60 65	
gcc ttc cat ttt gac acg tca tca tcg gac ttg agc tgt ctt ttt gat	297
Ala Phe His Phe Asp Thr Ser Ser Ser Asp Leu Ser Cys Thr Ala Met Asp	
70 75 80	
ttt ccg gcg gtt aaa gtc gag cca act gag aac ttt acg gcg atg gag	345
Phe Pro Ala Val Lys Val Glu Pro Thr Glu Asn Phe Thr Ala Met Glu	
85 90 95	
gag aaa cca aag aaa gcg ata ccg gtt acg gag acg gca gtg aag gcg	393
Glu Lys Pro Lys Lys Ala Ile Pro Val Thr Glu Thr Ala Val Lys Ala	
100 105 110	
aag cat tac aga gga gtg agg cag aga ccg tgg ggg aaa ttc gcg gcg	441
Lys His Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Phe Ala Ala	
115 120 125 130	
gag ata cgt gat ccg gcg aag aat gga gct agg gtt tgg tta ggg acg	489
Glu Ile Arg Asp Pro Ala Lys Asn Gly Ala Arg Val Trp Leu Gly Thr	
135 140 145	
ttt gag acg gcg gaa gat gcg gct tta gct tac gat ata gct gct ttt	537
Phe Glu Thr Ala Glu Asp Ala Ala Leu Ala Tyr Asp Ile Ala Ala Phe	
150 155 160	
agg atg cgt ggt tcc cgc gct tta ttg aat ttt ccg ttg agg gtt aat	585
Arg Met Arg Gly Ser Arg Ala Leu Leu Asn Phe Pro Leu Arg Val Asn	
165 170 175	
tcc ggt gaa cct gac ccg gtt cgg atc acg tct aag aga tct tct tcg	633
Ser Gly Glu Pro Asp Pro Val Arg Ile Thr Ser Lys Arg Ser Ser Ser	
180 185 190	
tcg tcg tcg tcg tcg tcc tct tct acg tcg tcg tct gaa aac ggg aag	681
Ser Ser Ser Ser Ser Ser Ser Ser Thr Ser Ser Ser Glu Asn Gly Lys	
195 200 205 210	
ttg aaa cga agg aga aaa gca gag aat ctg acg tcg gag gtg gtg cag	729
Leu Lys Arg Arg Arg Lys Ala Glu Asn Leu Thr Ser Glu Val Val Gln	
215 220 225	
gtg aag tgt gag gtt ggt gat gag aca cgt gtt gat gag tta ttg gtt	777
Val Lys Cys Glu Val Gly Asp Glu Thr Arg Val Asp Glu Leu Leu Val	
230 235 240	
tca taa gtttgatctt gtgtgttttg tagttgaata gttttgctat aaatgttgag	833
Ser	
gcaccaagta aaagtgttcc cgtgatgtaa attagttact aaacagagcc atatatcttc	893

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913

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Ile Thr Arg His Leu Leu Gly Gly Gly Glu Asn Glu Leu Arg Leu
20 25 30

Asn Glu Ser Thr Pro Ser Ser Cys Phe Thr Glu Ser Trp Gly Gly Leu
35 40 45

Pro Leu Lys Glu Asn Asp Ser Glu Asp Met Leu Val Tyr Gly Leu Leu
50 55 60

Lys Asp Ala Phe His Phe Asp Thr Ser Ser Ser Asp Leu Ser Cys Leu
65 70 75 80

Phe Asp Phe Pro Ala Val Lys Val Glu Pro Thr Glu Asn Phe Thr Ala
85 90 95

Met Glu Glu Lys Pro Lys Lys Ala Ile Pro Val Thr Glu Thr Ala Val
100 105 110

Lys Ala Lys His Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Phe
115 120 125

Ala Ala Glu Ile Arg Asp Pro Ala Lys Asn Gly Ala Arg Val Trp Leu
130 135 140

Gly Thr Phe Glu Thr Ala Glu Asp Ala Ala Leu Ala Tyr Asp Ile Ala
145 150 155 160

Ala Phe Arg Met Arg Gly Ser Arg Ala Leu Leu Asn Phe Pro Leu Arg
165 170 175

Val Asn Ser Gly Glu Pro Asp Pro Val Arg Ile Thr Ser Lys Arg Ser
180 185 190

Ser Ser Ser Ser Ser Ser Ser Ser Ser Thr Ser Ser Ser Glu Asn
195 200 205

Gly Lys Leu Lys Arg Arg Arg Lys Ala Glu Asn Leu Thr Ser Glu Val
210 215 220

Val Gln Val Lys Cys Glu Val Gly Asp Glu Thr Arg Val Asp Glu Leu
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Leu Val Ser

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<222> (66)..(1031) <223> G1051

<400> 417

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Met Ala Gln Leu Pro Pro Lys Ile Pro Asn Met Thr Gln His Trp
1 5 10 15

cct gat ttc tct tcc caa aag ctc tct cct ttc tct acc cca acc gca 158
Pro Asp Phe Ser Ser Gln Lys Leu Ser Pro Phe Ser Thr Pro Thr Ala
20 25 30

acc gct gtc gcc acc gct aca acc acc gta caa aac ccc tca tgg gtc 206
Thr Ala Val Ala Thr Ala Thr Thr Val Gln Asn Pro Ser Trp Val
35 40 45

gac gaa ttc ctc gac ttc tca gcg tct cgc cgt ggc aac cac cgt cgt 254
Asp Glu Phe Leu Asp Phe Ser Ala Ser Arg Arg Gly Asn His Arg Arg
50 55 60

tcc atc agc gac tct atc gca ttc ctc gaa gct cca aca gtc agc atc 302
Ser Ile Ser Asp Ser Ile Ala Phe Leu Glu Ala Pro Thr Val Ser Ile
65 70 75

gaa gac cac caa ttc gac agg ttc gat gac gaa cag ttc atg tgc atg 350
Glu Asp His Gln Phe Asp Arg Phe Asp Asp Glu Gln Phe Met Ser Met
80 85 90 95

ttc acc gac gac gac aac ctt cat agc aat cct tcc cat atc aac aac 398
Phe Thr Asp Asp Asp Asn Leu His Ser Asn Pro Ser His Ile Asn Asn
100 105 110

aaa aat aac aat gtg ggg ccc acg gga tct tcc tgc aac aca tcc acg 446
Lys Asn Asn Asn Val Gly Pro Thr Gly Ser Ser Ser Asn Thr Ser Thr
115 120 125

ccg tcc aat agc ttc aac gac gat aac aaa gaa tta cca ccg tcc gat 494
Pro Ser Asn Ser Phe Asn Asp Asp Asn Lys Glu Leu Pro Pro Ser Asp
130 135 140

cat aac atg aac aat aat atc aac aac aac tat aac gat gaa gtc caa 542
His Asn Met Asn Asn Asn Ile Asn Asn Asn Tyr Asn Asp Glu Val Gln
145 150 155

agc caa tgc aag atg gag cca gaa gat ggt acg gcg tcg aat aac aat 590
 Ser Gln Cys Lys Met Glu Pro Glu Asp Gly Thr Ala Ser Asn Asn Asn
 160 165 170 175

 tcc ggt gat agc tcc ggc aac cgg att ctc gat ccc aaa agg gtt aag 638
 Ser Gly Asp Ser Ser Gly Asn Arg Ile Leu Asp Pro Lys Arg Val Lys
 180 185 190

 aga ata tta gca aat cgg caa tca gca cag aga tca agg gtg agg aaa 686
 Arg Ile Leu Ala Asn Arg Gln Ser Ala Gln Arg Ser Arg Val Arg Lys
 195 200 205

 ctg caa tac ata tca gag ctc gaa cgt agc gtc act tcg ttg cag gcg 734
 Leu Gln Tyr Ile Ser Glu Leu Glu Arg Ser Val Thr Ser Leu Gln Ala
 210 215 220

 gaa gtg tca gtg tta tog cca aga gtt gca ttc ttg gat cat caa cgt 782
 Glu Val Ser Val Leu Ser Pro Arg Val Ala Phe Leu Asp His Gln Arg
 225 230 235

 ttg ctt ctt aac gtt gac aac agc gct ctc aag caa cga atc gct gct 830
 Leu Leu Leu Asn Val Asp Asn Ser Ala Leu Lys Gln Arg Ile Ala Ala
 240 245 250 255

 tta tct caa gac aag ctt ttc aaa gac gca cat caa gaa gca ttg aag 878
 Leu Ser Gln Asp Lys Leu Phe Lys Asp Ala His Gln Glu Ala Leu Lys
 260 265 270

 aga gaa ata gag aga ctt cga caa gtg tat aat caa caa agc ctc acg 926
 Arg Glu Ile Glu Arg Leu Arg Gln Val Tyr Asn Gln Gln Ser Leu Thr
 275 280 285

 aat gtg gaa aat gca aat cat tta tcg gcg acc gga gcc ggt gct act 974
 Asn Val Glu Asn Ala Asn His Leu Ser Ala Thr Gly Ala Gly Ala Thr
 290 295 300

 ccg gcc gtc gac atc aag tcg tcc gtt gaa aca gag cag ctc ctc aat 1022
 Pro Ala Val Asp Ile Lys Ser Ser Val Glu Thr Glu Gln Leu Leu Asn
 305 310 315

 gtc tca taa attaacatc atgcatcatc atcaacattt ctctcttttta 1071
 Val Ser
 320

 gctctctggc aaaagtctct gactataaaa tctctttcgg gtaagaaatt caggagatat 1131

 acatttttta ttctaatac attgttttta agttgtgatg aattcagttt gatgtatctt 1191

 atttattttg tttatgtcgt ctttttttct tgggggtgat ggaagggaat catcaattgt 1251

 tgtttgtaca aagaactagt tgaatttttt tttttttttt 1291

 <210> 418 <211> 321 <212> PRT <213> Arabidopsis thaliana <400> 418
 Met Ala Gln Leu Pro Pro Lys Ile Pro Asn Met Thr Gln His Trp Pro

1	5	10	15
Asp Phe Ser Ser Gln Lys Leu Ser Pro Phe Ser Thr Pro Thr Ala Thr	20	25	30
Ala Val Ala Thr Ala Thr Thr Thr Val Gln Asn Pro Ser Trp Val Asp	35	40	45
Glu Phe Leu Asp Phe Ser Ala Ser Arg Arg Gly Asn His Arg Arg Ser	50	55	60
Ile Ser Asp Ser Ile Ala Phe Leu Glu Ala Pro Thr Val Ser Ile Glu	65	70	75
Asp His Gln Phe Asp Arg Phe Asp Asp Glu Gln Phe Met Ser Met Phe	85	90	95
Thr Asp Asp Asp Asn Leu His Ser Asn Pro Ser His Ile Asn Asn Lys	100	105	110
Asn Asn Asn Val Gly Pro Thr Gly Ser Ser Ser Asn Thr Ser Thr Pro	115	120	125
Ser Asn Ser Phe Asn Asp Asp Asn Lys Glu Leu Pro Pro Ser Asp His	130	135	140
Asn Met Asn Asn Asn Ile Asn Asn Asn Tyr Asn Asp Glu Val Gln Ser	145	150	155
Gln Cys Lys Met Glu Pro Glu Asp Gly Thr Ala Ser Asn Asn Asn Ser	165	170	175
Gly Asp Ser Ser Gly Asn Arg Ile Leu Asp Pro Lys Arg Val Lys Arg	180	185	190
Ile Leu Ala Asn Arg Gln Ser Ala Gln Arg Ser Arg Val Arg Lys Leu	195	200	205
Gln Tyr Ile Ser Glu Leu Glu Arg Ser Val Thr Ser Leu Gln Ala Glu	210	215	220
Val Ser Val Leu Ser Pro Arg Val Ala Phe Leu Asp His Gln Arg Leu	225	230	235
			240

Leu Leu Asn Val Asp Asn Ser Ala Leu Lys Gln Arg Ile Ala Ala Leu
245 250 255

Ser Gln Asp Lys Leu Phe Lys Asp Ala His Gln Glu Ala Leu Lys Arg
260 265 270

Glu Ile Glu Arg Leu Arg Gln Val Tyr Asn Gln Gln Ser Leu Thr Asn
275 280 285

Val Glu Asn Ala Asn His Leu Ser Ala Thr Gly Ala Gly Ala Thr Pro
290 295 300

Ala Val Asp Ile Lys Ser Ser Val Glu Thr Glu Gln Leu Leu Asn Val
305 310 315 320

Ser

<210> 419 <211> 1342 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (198)..(1076) <223> G1076

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tTtCaataaa atagaaaaaa acatatacaa atCtaCagag aagagaagct tTatTTtaat 120

Cttgtgtgtg tgtgtgtgtt tTatataatt tTatTTTTt tTaaattaa aatCtcttct 180

tTgtctttga tgtgggc atg gct ggt ctt gat cta ggc aca gct ttt cgt 230
Met Ala Gly Leu Asp Leu Gly Thr Ala Phe Arg
1 5 10

tac gtt aat cac cag ctc cat cgt ccc gat ctc cac ctt cac cac aat 278
Tyr Val Asn His Gln Leu His Arg Pro Asp Leu His Leu His His Asn
15 20 25

tcc tcc tcc gat gac gtc act ccc gga gcc ggg atg ggt cat ttc acc 326
Ser Ser Ser Asp Asp Val Thr Pro Gly Ala Gly Met Gly His Phe Thr
30 35 40

gtc gac gac gaa gac aac aac aac aac cat caa ggt ctt gac tta gcc 374
Val Asp Asp Glu Asp Asn Asn Asn Asn His Gln Gly Leu Asp Leu Ala
45 50 55

tct ggt gga gga tca gga agc tct gga gga gga gga ggt cac gcc ggg 422
Ser Gly Gly Gly Ser Gly Ser Ser Gly Gly Gly Gly His Gly Gly
60 65 70 75

gga gga gac gtc gtt ggt cgt cgt cca cgt ggc aga cca ccg gga tcc 470

Gly Gly Asp Val Val Gly Arg Arg Pro Arg Gly Arg Pro Pro Gly Ser	
80 85 90	
aag aac aaa ccg aaa cct ccg gta att atc acg cgc gag agc gca aac	518
Lys Asn Lys Pro Lys Pro Val Ile Thr Arg Glu Ser Ala Asn	
95 100 105	
act cta aga gct cac att ctt gaa gta aca aac ggc tgc gat gtt ttc	566
Thr Leu Arg Ala His Ile Leu Glu Val Thr Asn Gly Cys Asp Val Phe	
110 115 120	
gac tgc gtt cgc act tat gct cgt ccg aga cag cga ggg atc tgc gtt	614
Asp Cys Val Ala Thr Tyr Ala Arg Arg Arg Gln Arg Gly Ile Cys Val	
125 130 135	
ctg agc ggt agc gga acg gtc acg aac gtc agc ata cgt cag cca tct	662
Leu Ser Gly Ser Gly Thr Val Thr Asn Val Ser Ile Arg Gln Pro Ser	
140 145 150 155	
gcg gct gga cgc gtt gtg acg cta caa gga acg ttc gag att ctt tct	710
Ala Ala Gly Ala Val Val Thr Leu Gln Gly Thr Phe Glu Ile Leu Ser	
160 165 170	
ctc tcc gga tgc ttt ctt cct cct ccg gca cct ccc gga gca acg agt	758
Leu Ser Gly Ser Phe Leu Pro Pro Pro Ala Pro Pro Gly Ala Thr Ser	
175 180 185	
ttg aca att ttc tta gcc gga gga caa ggt cag gtg gtt gga gga agc	806
Leu Thr Ile Phe Leu Ala Gly Gly Gln Gly Gln Val Val Gly Gly Ser	
190 195 200	
gtt gtg ggt gag ctt acg cgc gct gga ccg gtg att gtg att gca gct	854
Val Val Gly Glu Leu Thr Ala Ala Gly Pro Val Ile Val Ile Ala Ala	
205 210 215	
tcg ttt act aat gtt gct tat gag aga ctt cct tta gaa gaa gat gag	902
Ser Phe Thr Asn Val Ala Tyr Glu Arg Leu Pro Leu Glu Glu Asp Glu	
220 225 230 235	
cag cag caa cag ctt gga gga gga tct aac ggc gga ggt aat ttg ttt	950
Gln Gln Gln Gln Leu Gly Gly Gly Ser Asn Gly Gly Gly Asn Leu Phe	
240 245 250	
ccg gag gtg gca gct gga gga gga gga gga ctt ccg ttc ttt aat tta	998
Pro Glu Val Ala Ala Gly Gly Gly Gly Gly Leu Pro Phe Phe Asn Leu	
255 260 265	
ccg atg aat atg caa cca aat gtg caa ctt ccg gtg gaa ggt tgg ccg	1046
Pro Met Asn Met Gln Pro Asn Val Gln Leu Pro Val Glu Gly Trp Pro	
270 275 280	
ggg aat tcc ggt gga aga ggt cct ttc tga tgtgtatatata ttgataatca	1096
Gly Asn Ser Gly Gly Arg Gly Pro Phe	
285 290	
ttatatatat accgcggagg aagcttttcc ggcaagaat ttgcgagagt gaagaaaggt	1156

tagaaaagct tttaatggac taatgaattt caaattatca tcgtgatttc ggacattgtc 1216
 ttgttcacatca tgtaaagctt aggtttattt tttgtcgttt gtagaatttt atgtttgaat 1276
 cctttttttt ttctgtgaaa ctctattgtg ttcgtctgcg aaggaaaaaa aaattctcaa 1336
 aaaaaa 1342

<210> 420 <211> 292 <212> PRT <213> Arabidopsis thaliana <400> 420

Met Ala Gly Leu Asp Leu Gly Thr Ala Phe Arg Tyr Val Asn His Gln
 1 5 10 15

Leu His Arg Pro Asp Leu His Leu His His Asn Ser Ser Ser Asp Asp
 20 25 30

Val Thr Pro Gly Ala Gly Met Gly His Phe Thr Val Asp Asp Glu Asp
 35 40 45

Asn Asn Asn Asn His Gln Gly Leu Asp Leu Ala Ser Gly Gly Gly Ser
 50 55 60

Gly Ser Ser Gly Gly Gly Gly Gly His Gly Gly Gly Gly Asp Val Val
 65 70 75 80

Gly Arg Arg Pro Arg Gly Arg Pro Pro Gly Ser Lys Asn Lys Pro Lys
 85 90 95

Pro Pro Val Ile Ile Thr Arg Glu Ser Ala Asn Thr Leu Arg Ala His
 100 105 110

Ile Leu Glu Val Thr Asn Gly Cys Asp Val Phe Asp Cys Val Ala Thr
 115 120 125

Tyr Ala Arg Arg Arg Gln Arg Gly Ile Cys Val Leu Ser Gly Ser Gly
 130 135 140

Thr Val Thr Asn Val Ser Ile Arg Gln Pro Ser Ala Ala Gly Ala Val
 145 150 155 160

Val Thr Leu Gln Gly Thr Phe Glu Ile Leu Ser Leu Ser Gly Ser Phe
 165 170 175

Leu Pro Pro Pro Ala Pro Pro Gly Ala Thr Ser Leu Thr Ile Phe Leu
 180 185 190

Ala Gly Gly Gln Gly Gln Val Val Gly Gly Ser Val Val Gly Glu Leu
195 200 205

Thr Ala Ala Gly Pro Val Ile Val Ile Ala Ala Ser Phe Thr Asn Val
210 215 220

Ala Tyr Glu Arg Leu Pro Leu Glu Glu Asp Glu Gln Gln Gln Gln Leu
225 230 235 240

Gly Gly Gly Ser Asn Gly Gly Gly Asn Leu Phe Pro Glu Val Ala Ala
245 250 255

Gly Gly Gly Gly Gly Leu Pro Phe Phe Asn Leu Pro Met Asn Met Gln
260 265 270

Pro Asn Val Gln Leu Pro Val Glu Gly Trp Pro Gly Asn Ser Gly Gly
275 280 285

Arg Gly Pro Phe
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<210> 421 <211> 1556 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(1260) <223> G1128

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Met Glu Glu Arg Glu Gly Thr Asn Ile Asn Asn Ile Pro Thr Ser Phe
1 5 10 15

ggt ctg aaa caa cat gaa act cct ctt cct cct cct ggt tac cca cca 96
Gly Leu Lys Gln His Glu Thr Pro Leu Pro Pro Pro Gly Tyr Pro Pro
20 25 30

cgg tct gaa aac cct aat ctt ttt ccg gtg ggt caa tcc agc act tcc 144
Arg Ser Glu Asn Pro Asn Leu Phe Pro Val Gly Gln Ser Ser Thr Ser
35 40 45

tcc gcc gcc gcc gcg gtg aaa cct tct gag aat gtt gct cct cct ttt 192
Ser Ala Ala Ala Val Lys Pro Ser Glu Asn Val Ala Pro Pro Phe
50 55 60

agc tta aca atg ccg gtg gag aat tct tct tct gag ttg aag aag aag 240
Ser Leu Thr Met Pro Val Glu Asn Ser Ser Ser Glu Leu Lys Lys Lys
65 70 75 80

aga ggg aga cca aga aag tat aac cct gac gcc tca ctc gct gtg act 288
Arg Gly Arg Pro Arg Lys Tyr Asn Pro Asp Gly Ser Leu Ala Val Thr
85 90 95

ctc tct cct atg cct atc tca tcc tcc gtt cgg ttg acg tcg gag ttt	336
Leu Ser Pro Met Pro Ile Ser Ser Ser Val Pro Leu Thr Ser Glu Phe	
100 105 110	
ggg tct cgg aaa cga gga aga ggt cga gga aga ggc aga gga aga gga	384
Gly Ser Arg Lys Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly	
115 120 125	
cga gga cgt gga caa gga caa gga agc aga gag ccc aat aac aac aac	432
Arg Gly Arg Gly Gln Gly Gln Gly Ser Arg Glu Pro Asn Asn Asn Asn	
130 135 140	
aac gac aac aat tgg ctc aag aat cct cag atg ttc gaa ttt aac aac	480
Asn Asp Asn Asn Trp Leu Lys Asn Pro Gln Met Phe Glu Phe Asn Asn	
145 150 155 160	
aac act cct act tct ggt gga gga gga cct gct gaa att gtc agt cca	528
Asn Thr Pro Thr Ser Gly Gly Gly Gly Pro Ala Glu Ile Val Ser Pro	
165 170 175	
agt ttt aca cct cat gtg ctc aca gta aat gcc ggt gag gat gtg aca	576
Ser Phe Thr Pro His Val Leu Thr Val Asn Ala Gly Glu Asp Val Thr	
180 185 190	
atg aag ata atg aca ttc tct caa caa ggc tcg cgt gct att tgt att	624
Met Lys Ile Met Thr Phe Ser Gln Gln Gly Ser Arg Ala Ile Cys Ile	
195 200 205	
ctt tca cgg aac ggt ccc ata tcc aat gtt aca ctt cgt caa tct atg	672
Leu Ser Ala Asn Gly Pro Ile Ser Asn Val Thr Leu Arg Gln Ser Met	
210 215 220	
aca tct ggt ggt act ctc act tat gag ggt cat ttt gag att ctt tct	720
Thr Ser Gly Gly Thr Leu Thr Tyr Glu Gly His Phe Glu Ile Leu Ser	
225 230 235 240	
ttg acg ggt tcg ttt ata cca agc gag agt gga gga acc cga agc aga	768
Leu Thr Gly Ser Phe Ile Pro Ser Glu Ser Gly Gly Thr Arg Ser Arg	
245 250 255	
gct ggt ggg atg agt gtc tct ctt gca gga caa gat ggt cgt gtc ttt	816
Ala Gly Gly Met Ser Val Ser Leu Ala Gly Gln Asp Gly Arg Val Phe	
260 265 270	
ggg ggt gga ctt gct ggt ctc ttt att gcc gct ggt cct gtt cag gta	864
Gly Gly Gly Leu Ala Gly Leu Phe Ile Ala Ala Gly Pro Val Gln Val	
275 280 285	
atg gta ggg agt ttt ata cgc ggt cag gag gaa tcg cag cag cag cag	912
Met Val Gly Ser Phe Ile Ala Gly Gln Glu Glu Ser Gln Gln Gln Gln	
290 295 300	
cag cag ata aag aag caa aga agg gaa aga ctc ggg atc cgg aca aca	960
Gln Gln Ile Lys Lys Gln Arg Arg Glu Arg Leu Gly Ile Pro Thr Thr	
305 310 315 320	

aca caa gct tct aat atc tca ttc ggt ggc tca gcg gaa gat cct aag 1008
Thr Gln Ala Ser Asn Ile Ser Phe Gly Gly Ser Ala Glu Asp Pro Lys
325 330 335

gct aga tac ggg ctc aac aag cct gtt gtt att cag cca cca ccg gtg 1056
Ala Arg Tyr Gly Leu Asn Lys Pro Val Val Ile Gln Pro Pro Pro Val
340 345 350

tct gca cca cct gtg tcc ttt tcg cat gaa cca agt act aac acc gtc 1104
Ser Ala Pro Pro Val Ser Phe Ser His Glu Pro Ser Thr Asn Thr Val
355 360 365

cat ggt tac tat gca aat aac aca gct aac cat atc aag gat ctc ttc 1152
His Gly Tyr Tyr Ala Asn Asn Thr Ala Asn His Ile Lys Asp Leu Phe
370 375 380

tct tcc ctc cct gga gaa gat agg gaa gaa gat gag gat gat tta gaa 1200
Ser Ser Leu Pro Gly Glu Asp Arg Glu Glu Asp Glu Asp Asp Leu Glu
385 390 395 400

ggt gaa gat gat gaa gaa ttc gga ggc cat agc gaa tct gac acc gag 1248
Gly Glu Asp Asp Glu Glu Phe Gly Gly His Ser Glu Ser Asp Thr Glu
405 410 415

gtt cca agc tga tgatcgatgg aaagaatccg acatatatgt gttatgaatc 1300
Val Pro Ser

ttgagttgtt ttatttcggt gtcttcagat ttttttagag cgtaatggta ttttttttct 1360

ttcagattgt tagttgttaa agtcttaaac agagatatatt cactaaaagt tagggtttac 1420

tagaggatgt aatctttagg gttctttgac ttgtgtcttt cttttaatcc tcagatgggt 1480

gttgtaggct tgtagccaat cttagtgtgt gttcaaactc tctccttcaa tcaaactccc 1540

caatgacttc attttg 1556

<210> 422 <211> 419 <212> PRT <213> Arabidopsis thaliana <400> 422

Met Glu Glu Arg Glu Gly Thr Asn Ile Asn Asn Ile Pro Thr Ser Phe
1 5 10 15

Gly Leu Lys Gln His Glu Thr Pro Leu Pro Pro Pro Gly Tyr Pro Pro
20 25 30

Arg Ser Glu Asn Pro Asn Leu Phe Pro Val Gly Gln Ser Ser Thr Ser
35 40 45

Ser Ala Ala Ala Ala Val Lys Pro Ser Glu Asn Val Ala Pro Pro Phe
50 55 60

Ser Leu Thr Met Pro Val Glu Asn Ser Ser Ser Glu Leu Lys Lys Lys
 65 70 75 80

Arg Gly Arg Pro Arg Lys Tyr Asn Pro Asp Gly Ser Leu Ala Val Thr
 85 90 95

Leu Ser Pro Met Pro Ile Ser Ser Ser Val Pro Leu Thr Ser Glu Phe
 100 105 110

Gly Ser Arg Lys Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly
 115 120 125

Arg Gly Arg Gly Gln Gly Gln Gly Ser Arg Glu Pro Asn Asn Asn Asn
 130 135 140

Asn Asp Asn Asn Trp Leu Lys Asn Pro Gln Met Phe Glu Phe Asn Asn
 145 150 155 160

Asn Thr Pro Thr Ser Gly Gly Gly Gly Pro Ala Glu Ile Val Ser Pro
 165 170 175

Ser Phe Thr Pro His Val Leu Thr Val Asn Ala Gly Glu Asp Val Thr
 180 185 190

Met Lys Ile Met Thr Phe Ser Gln Gln Gly Ser Arg Ala Ile Cys Ile
 195 200 205

Leu Ser Ala Asn Gly Pro Ile Ser Asn Val Thr Leu Arg Gln Ser Met
 210 215 220

Thr Ser Gly Gly Thr Leu Thr Tyr Glu Gly His Phe Glu Ile Leu Ser
 225 230 235 240

Leu Thr Gly Ser Phe Ile Pro Ser Glu Ser Gly Gly Thr Arg Ser Arg
 245 250 255

Ala Gly Gly Met Ser Val Ser Leu Ala Gly Gln Asp Gly Arg Val Phe
 260 265 270

Gly Gly Gly Leu Ala Gly Leu Phe Ile Ala Ala Gly Pro Val Gln Val
 275 280 285

Met Val Gly Ser Phe Ile Ala Gly Gln Glu Glu Ser Gln Gln Gln

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Gln Gln Ile Lys Lys Gln Arg Arg Glu Arg Leu Gly Ile Pro Thr Thr
305 310 315 320

Thr Gln Ala Ser Asn Ile Ser Phe Gly Gly Ser Ala Glu Asp Pro Lys
325 330 335

Ala Arg Tyr Gly Leu Asn Lys Pro Val Val Ile Gln Pro Pro Pro Val
340 345 350

Ser Ala Pro Pro Val Ser Phe Ser His Glu Pro Ser Thr Asn Thr Val
355 360 365

His Gly Tyr Tyr Ala Asn Asn Thr Ala Asn His Ile Lys Asp Leu Phe
370 375 380

Ser Ser Leu Pro Gly Glu Asp Arg Glu Glu Asp Glu Asp Asp Leu Glu
385 390 395 400

Gly Glu Asp Asp Glu Glu Phe Gly Gly His Ser Glu Ser Asp Thr Glu
405 410 415

Val Pro Ser

<210> 423 <211> 1322 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (104)..(1084) <223> G1133

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tattgtattc ctgtaaagtt cccctggcgtt aaactgcaag agc atg cct ctt gat 115
Met Pro Leu Asp
1

acc aaa cag cag aaa tgg ttg cca tta ggc tta aat cct caa gct tgt 163
Thr Lys Gln Gln Lys Trp Leu Pro Leu Gly Leu Asn Pro Gln Ala Cys
5 10 15 20

gtc cag gac aag gcg act gag tat ttc cgt cct gga att cct ttt ccg 211
Val Gln Asp Lys Ala Thr Glu Tyr Phe Arg Pro Gly Ile Pro Phe Pro
25 30 35

gaa ctc ggt aaa gtt tat gca gct gag cat cag ttt cgc tat ttg cag 259
Glu Leu Gly Lys Val Tyr Ala Ala Glu His Gln Phe Arg Tyr Leu Gln
40 45 50

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cca cgc ttc caa gcc tta ttg tct aga tat gat cag cag tct tgt gga	307
Pro Pro Phe Gln Ala Leu Leu Ser Arg Tyr Asp Gln Gln Ser Cys Gly	
55 60 65	
aaa caa gtt tca tgt ttg aat ggg cga tct agc aac ggt gct gct cca	355
Lys Gln Val Ser Cys Leu Asn Gly Arg Ser Ser Asn Gly Ala Ala Pro	
70 75 80	
gag ggg gca ctc aag tct tct cgg aaa aga ttt ata gta ttc gat cag	403
Glu Gly Ala Leu Lys Ser Ser Arg Lys Arg Phe Ile Val Phe Asp Gln	
85 90 95 100	
tcg gga gag cag act cgt ttg tta caa tgt gga ttt cct ctg cgg ttt	451
Ser Gly Glu Gln Thr Arg Leu Leu Gln Cys Gly Phe Pro Leu Arg Phe	
105 110 115	
cct tct tct atg gat gca gag cga ggg aac att ctc ggt gcc cta cac	499
Pro Ser Ser Met Asp Ala Glu Arg Gly Asn Ile Leu Glu Ala Leu His	
120 125 130	
cca gag aaa ggg ttt agt aaa gat cat gcc att caa gaa aag ata ttg	547
Pro Glu Lys Gly Phe Ser Lys Asp His Ala Ile Gln Glu Lys Ile Leu	
135 140 145	
caa cat gaa gat cat gaa aat ggc gaa gaa gac tcg gaa atg cac gaa	595
Gln His Glu Asp His Glu Asn Gly Glu Glu Asp Ser Glu Met His Glu	
150 155 160	
gac act gag gaa atc aac gcg tta ctg tat tct gat gat gac gat aat	643
Asp Thr Glu Glu Ile Asn Ala Leu Leu Tyr Ser Asp Asp Asp Asp Asn	
165 170 175 180	
gat gat tgg gaa agt gat gat gaa gta atg agc act ggt cac tct cca	691
Asp Asp Trp Glu Ser Asp Asp Glu Val Met Ser Thr Gly His Ser Pro	
185 190 195	
ttc aca gtt gaa caa caa gcg tgc aac ata aca aca gaa gag ctg gat	739
Phe Thr Val Glu Gln Gln Ala Cys Asn Ile Thr Thr Glu Leu Asp	
200 205 210	
gaa act gaa agc act gtt gat ggt cca ctt ctt aaa aga cag aaa cta	787
Glu Thr Glu Ser Thr Val Asp Gly Pro Leu Leu Lys Arg Gln Lys Leu	
215 220 225	
ctg gac cat tcg tac aga gac tca tca cca tcc ctt gtg ggc acc act	835
Leu Asp His Ser Tyr Arg Asp Ser Ser Pro Ser Leu Val Gly Thr Thr	
230 235 240	
aaa gtc aaa ggc tta tca gat gaa aac ctt cct gaa tca aac att tca	883
Lys Val Lys Gly Leu Ser Asp Glu Asn Leu Pro Glu Ser Asn Ile Ser	
245 250 255 260	
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Ser Lys Gln Glu Thr Gly Ser Gly Leu Ser Asp Glu Gln Ser Arg Lys	
265 270 275	
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Asp Lys Ile His Thr Ala Leu Arg Ile Leu Glu Ser Val Val Pro Gly
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gca aag gga aaa gaa gct ctt tta cta cta gac gaa gcc att gat tac 1027
 Ala Lys Gly Lys Glu Ala Leu Leu Leu Asp Glu Ala Ile Asp Tyr
 295 300 305

ctc aag ttg ctg aag caa agc tta aac tca tca aag ggt ttg aat aac 1075
 Leu Lys Leu Leu Lys Gln Ser Leu Asn Ser Ser Lys Gly Leu Asn Asn
 310 315 320

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 His Trp
 325

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 gaagattctc tcaaatccat taacgtgggt ttgaacaat tagaacacgc ctggtgaccc 1244
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Ile Pro Phe Pro Glu Leu Gly Lys Val Tyr Ala Ala Glu His Gln Phe
 35 40 45

Arg Tyr Leu Gln Pro Pro Phe Gln Ala Leu Leu Ser Arg Tyr Asp Gln
 50 55 60

Gln Ser Cys Gly Lys Gln Val Ser Cys Leu Asn Gly Arg Ser Ser Asn
 65 70 75 80

Gly Ala Ala Pro Glu Gly Ala Leu Lys Ser Ser Arg Lys Arg Phe Ile
 85 90 95

Val Phe Asp Gln Ser Gly Glu Gln Thr Arg Leu Leu Gln Cys Gly Phe
 100 105 110

Pro Leu Arg Phe Pro Ser Ser Met Asp Ala Glu Arg Gly Asn Ile Leu
 115 120 125

Gly Ala Leu His Pro Glu Lys Gly Phe Ser Lys Asp His Ala Ile Gln
130 135 140

Glu Lys Ile Leu Gln His Glu Asp His Glu Asn Gly Glu Glu Asp Ser
145 150 155 160

Glu Met His Glu Asp Thr Glu Glu Ile Asn Ala Leu Leu Tyr Ser Asp
165 170 175

Asp Asp Asp Asn Asp Asp Trp Glu Ser Asp Asp Glu Val Met Ser Thr
180 185 190

Gly His Ser Pro Phe Thr Val Glu Gln Gln Ala Cys Asn Ile Thr Thr
195 200 205

Glu Glu Leu Asp Glu Thr Glu Ser Thr Val Asp Gly Pro Leu Leu Lys
210 215 220

Arg Gln Lys Leu Leu Asp His Ser Tyr Arg Asp Ser Ser Pro Ser Leu
225 230 235 240

Val Gly Thr Thr Lys Val Lys Gly Leu Ser Asp Glu Asn Leu Pro Glu
245 250 255

Ser Asn Ile Ser Ser Lys Gln Glu Thr Gly Ser Gly Leu Ser Asp Glu
260 265 270

Gln Ser Arg Lys Asp Lys Ile His Thr Ala Leu Arg Ile Leu Glu Ser
275 280 285

Val Val Pro Gly Ala Lys Gly Lys Glu Ala Leu Leu Leu Asp Glu
290 295 300

Ala Ile Asp Tyr Leu Lys Leu Leu Lys Gln Ser Leu Asn Ser Ser Lys
305 310 315 320

Gly Leu Asn Asn His Trp
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Ser	Leu	Ala	Glu	Ala	Lys	Arg	Lys	Arg	Leu	Thr	Trp	Ile	Leu	Cys	Val		
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Ser	Gly	Leu	Cys	Ile	Leu	Ser	Tyr	Val	Leu	Gly	Ser	Trp	Gln	Thr	Asn		
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Thr	Val	Pro	Thr	Ser	Ser	Ser	Glu	Ala	Tyr	Ser	Arg	Met	Gly	Cys	Asp		
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gaa	aca	tca	aca	acc	act	cgg	gct		cag	act	act	cag	act	caa	aca	aat	304
Glu	Thr	Ser	Thr	Thr	Thr	Arg	Ala		Gln	Thr	Thr	Gln	Thr	Gln	Thr	Asn	
			60						65					70			
cct	tct	tct	gac	gat	act	tct	tcc	tct	ttg	tct	tcc	tca	gaa	cca	gtt	352	
Pro	Ser	Ser	Asp	Asp	Thr	Ser	Ser	Ser	Leu	Ser	Ser	Ser	Glu	Pro	Val		
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Gln	Thr	Val	Lys	Tyr	Phe	Glu	Pro	Cys	Asp	Met	Ser	Leu	Ser	Glu	Tyr		
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Thr	Pro	Cys	Glu	Asp	Arg	Glu	Arg	Gly	Arg	Arg	Phe	Asp	Arg	Asn	Met		
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Met	Lys	Tyr	Arg	Glu	Arg	His	Cys	Pro	Ser	Lys	Asp	Glu	Leu	Leu	Tyr		
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tgt	ctg	att	cct	cct	cca	cca	aac	tac	aag	att	cca	tto	aag	tgg	cct	592	
Cys	Leu	Ile	Pro	Pro	Pro	Pro	Asn	Tyr	Lys	Ile	Pro	Phe	Lys	Trp	Pro		
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caa	agt	aga	gat	tat	gct	tgg	tac	gac	aac	att	cca	cac	aag	gag	ctt	640	
Gln	Ser	Arg	Asp	Tyr	Ala	Trp	Tyr	Asp	Asn	Ile	Pro	His	Lys	Glu	Leu		
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Ser	Ile	Glu	Lys	Ala	Ile	Gln	Asn	Trp	Ile	Gln	Val	Glu	Gly	Glu	Arg		
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ttc	agg	ttc	cct	ggg	ggg	ggc	aca	atg	ttt	cca	cgt	gga	gct	gat	gct	736	
Phe	Arg	Phe	Pro	Gly	Gly	Gly	Thr	Met	Phe	Pro	Arg	Gly	Ala	Asp	Ala		
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Tyr Ile Asp Asp Ile Ala Arg Leu Ile Pro Leu Thr Asp Gly Ala Ile	
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Arg Thr Ala Ile Asp Thr Gly Cys Gly Val Ala Ser Phe Gly Ala Tyr	
235 240 245	
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Leu Leu Lys Arg Asp Ile Val Ala Met Ser Phe Ala Pro Arg Asp Thr	
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His Glu Ala Gln Val Gln Phe Ala Leu Glu Arg Gly Val Pro Ala Ile	
265 270 275 280	
atc ggg att atg gga tca aga agg ctt cct tat cca gct aga gct ttt	976
Ile Gly Ile Met Gly Ser Arg Arg Leu Pro Tyr Pro Ala Arg Ala Phe	
285 290 295	
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Asp Leu Ala His Cys Ser Arg Cys Leu Ile Pro Trp Phe Gln Asn Asp	
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Gly Leu Tyr Leu Thr Glu Val Asp Arg Val Leu Arg Pro Gly Gly Tyr	
315 320 325	
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Trp Ile Leu Ser Gly Pro Pro Ile Asn Trp Lys Lys Tyr Trp Lys Gly	
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Trp Glu Arg Ser Gln Glu Asp Leu Lys Gln Glu Gln Asp Ser Ile Glu	
345 350 355 360	
gat gca gca aga agt ctt tgt tgg aag aaa gtt aca gaa aag ggt gat	1216
Asp Ala Ala Arg Ser Leu Cys Trp Lys Lys Val Thr Glu Lys Gly Asp	
365 370 375	
tta tca att tgg caa aag cct atc aat cac gtt gag tgt aac aaa ctc	1264
Leu Ser Ile Trp Gln Lys Pro Ile Asn His Val Glu Cys Asn Lys Leu	
380 385 390	
aaa cga gtt cac aaa act cct cct cta tgc agt aaa tca gat tta ccc	1312
Lys Arg Val His Lys Thr Pro Pro Leu Cys Ser Lys Ser Asp Leu Pro	
395 400 405	
gat ttt gct tgg tac aaa gat ttg gaa tct tgt gta aca cca tta cca	1360
Asp Phe Ala Trp Tyr Lys Asp Leu Glu Ser Cys Val Thr Pro Leu Pro	
410 415 420	
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35 40 45

Ala Tyr Ser Arg Met Gly Cys Asp Glu Thr Ser Thr Thr Thr Arg Ala
50 55 60

Gln Thr Thr Gln Thr Gln Thr Asn Pro Ser Ser Asp Asp Thr Ser Ser
65 70 75 80

Ser Leu Ser Ser Ser Glu Pro Val Glu Leu Asp Phe Glu Ser His His
85 90 95

Lys Leu Glu Leu Lys Ile Thr Asn Gln Thr Val Lys Tyr Phe Glu Pro
100 105 110

Cys Asp Met Ser Leu Ser Glu Tyr Thr Pro Cys Glu Asp Arg Glu Arg
115 120 125

Gly Arg Arg Phe Asp Arg Asn Met Met Lys Tyr Arg Glu Arg His Cys
130 135 140

Pro Ser Lys Asp Glu Leu Leu Tyr Cys Leu Ile Pro Pro Pro Pro Asn
145 150 155 160

Tyr Lys Ile Pro Phe Lys Trp Pro Gln Ser Arg Asp Tyr Ala Trp Tyr
165 170 175

Asp Asn Ile Pro His Lys Glu Leu Ser Ile Glu Lys Ala Ile Gln Asn
180 185 190

Trp Ile Gln Val Glu Gly Glu Arg Phe Arg Phe Pro Gly Gly Gly Thr
195 200 205

Met Phe Pro Arg Gly Ala Asp Ala Tyr Ile Asp Asp Ile Ala Arg Leu
210 215 220

Ile Pro Leu Thr Asp Gly Ala Ile Arg Thr Ala Ile Asp Thr Gly Cys
225 230 235 240

Gly Val Ala Ser Phe Gly Ala Tyr Leu Leu Lys Arg Asp Ile Val Ala
245 250 255

Met Ser Phe Ala Pro Arg Asp Thr His Glu Ala Gln Val Gln Phe Ala
260 265 270

Leu Glu Arg Gly Val Pro Ala Ile Ile Gly Ile Met Gly Ser Arg Arg
275 280 285

Leu Pro Tyr Pro Ala Arg Ala Phe Asp Leu Ala His Cys Ser Arg Cys
290 295 300

Leu Ile Pro Trp Phe Gln Asn Asp Gly Leu Tyr Leu Thr Glu Val Asp
305 310 315 320

Arg Val Leu Arg Pro Gly Gly Tyr Trp Ile Leu Ser Gly Pro Pro Ile
325 330 335

Asn Trp Lys Lys Tyr Trp Lys Gly Trp Glu Arg Ser Gln Glu Asp Leu
340 345 350

Lys Gln Glu Gln Asp Ser Ile Glu Asp Ala Ala Arg Ser Leu Cys Trp
355 360 365

Lys Lys Val Thr Glu Lys Gly Asp Leu Ser Ile Trp Gln Lys Pro Ile
370 375 380

Asn His Val Glu Cys Asn Lys Leu Lys Arg Val His Lys Thr Pro Pro
385 390 395 400

Leu Cys Ser Lys Ser Asp Leu Pro Asp Phe Ala Trp Tyr Lys Asp Leu
405 410 415

Glu Ser Cys Val Thr Pro Leu Pro Glu Ala Asn Ser Ser Asp Glu Phe
420 425 430

Ala Gly Gly Ala Leu Glu Asp Trp Pro Asn Arg Ala Phe Ala Val Pro
435 440 445

Pro Arg Ile Ile Gly Gly Thr Ile Pro Asp Ile Asn Ala Glu Lys Phe
450 455 460

Arg Glu Asp Asn Glu Val Trp Lys Glu Arg Ile Ser Tyr Tyr Lys Gln
465 470 475 480

Ile Met Pro Glu Leu Ser Arg Gly Arg Phe Arg Asn Ile Met Asp Met
485 490 495

Asn Ala Tyr Leu Gly Gly Phe Ala Ala Ala Met Met Lys Tyr Pro Ser
500 505 510

Trp Val Met Asn Val Val Pro Val Asp Ala Glu Lys Gln Thr Leu Gly
515 520 525

Val Ile Phe Glu Arg Gly Phe Ile Gly Thr Tyr Gln Asp Trp Cys Glu
530 535 540

Gly Phe Ser Thr Tyr Pro Arg Thr Tyr Asp Leu Ile His Ala Gly Gly
545 550 555 560

Leu Phe Ser Ile Tyr Glu Asn Arg Cys Asp Val Thr Leu Ile Leu Leu
565 570 575

Glu Met Asp Arg Ile Leu Arg Pro Glu Gly Thr Val Val Phe Arg Asp
580 585 590

Thr Val Glu Met Leu Thr Lys Ile Gln Ser Ile Thr Asn Gly Met Arg
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Val Ser Ser Ser Asp Asp Arg Lys Ile Val Ala Asp Thr Pro Asp Phe	
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Ile Asp Glu Ser Ser Leu Val Ile Arg Thr Thr Thr Gly Val Arg Ile	
35 40 45	
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Ser Ala Leu Pro Ala Glu Gln Ser Leu Val Asp Ser Asp Gly Ser Asn	
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tcg gag gtt acg ctt ccg gcg aaa gac gag gta att agt gat ggt ttt	240
Ser Glu Val Thr Leu Pro Ala Lys Asp Glu Val Ile Ser Asp Gly Phe	
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Thr Cys Val Asn Lys Glu Ile Val Glu Ser Asp Ser Phe Arg Gly Gln	
85 90 95	
aat cta gag att gga gaa cct gat tta gat gtt gag aat cgc aaa gaa	336
Asn Leu Glu Ile Gly Glu Pro Asp Leu Asp Val Glu Asn Arg Lys Glu	
100 105 110	
gcg atg att att gat tcg ata gaa aat tct gtg gtt gaa att gtt tca	384
Ala Met Ile Ile Asp Ser Ile Glu Asn Ser Val Val Glu Ile Val Ser	
115 120 125	
agt gct tct ggt gat gat tgt aat gtt aag gta gag gta gtg gaa cct	432
Ser Ala Ser Gly Asp Asp Cys Asn Val Lys Val Glu Val Val Glu Pro	
130 135 140	
gaa ttg ctt gtt gag aat ctg gtg gtt gct aaa gaa gaa gaa gaa atg	480
Glu Leu Leu Val Glu Asn Leu Val Val Ala Lys Glu Glu Glu Glu Met	
145 150 155 160	
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Ile Val Asp Ser Ile Glu Asp Ser Val Val Glu Ile Val Ser Thr Ala	
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Ser Gly Cys Asp Cys Asn Val Lys Val Glu Val Val Asp Pro Glu Leu	
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Cys Val Asp Asn Leu Val Val Val Lys Glu Glu Glu Met Ile Ala Asp	
195 200 205	
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Ser Ile Ala Glu Ser Val Val Glu Thr Val Ser Arg Gly Leu Asp Tyr	
210 215 220	
gag tgt gtt gat gtc aag gtg aaa gaa gaa cct gat tta ggt aca aaa	720
Glu Cys Val Asp Val Lys Val Lys Glu Glu Pro Asp Leu Gly Thr Lys	
225 230 235 240	
ttg gaa gaa gat tct gtt ttt ccg aat gtg ctt gag aag aag gat gag	768
Leu Glu Glu Asp Ser Val Phe Pro Asn Val Leu Glu Lys Lys Asp Glu	

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	Val Ile Lys Val Leu Glu Asp Gln Pro Ser Glu Ile Asn Lys Lys Leu			
	260	265	270	
	gag caa gag aat gat gat ctc ttt tgg tct gga gat tca gat ggt aca			864
	Glu Gln Glu Asn Asp Asp Leu Phe Ser Ser Gly Asp Ser Asp Gly Thr			
	275	280	285	
	tca gcc aag aga agg aaa atg gag atg gaa tca tat gca cca gtc ggt			912
	Ser Ala Lys Arg Arg Lys Met Glu Met Glu Ser Tyr Ala Pro Val Gly			
	290	295	300	
	gtg gaa agc tgt atc ctg gcg ccg acg cct ctt cga gtt gtg aaa cca			960
	Val Glu Ser Cys Ile Leu Ala Pro Thr Pro Leu Arg Val Val Lys Pro			
	305	310	315	
	gag aag ttg gat acc cct gaa gtt att gat ctg gaa tca gag aaa agt			1008
	Glu Lys Leu Asp Thr Pro Glu Val Ile Asp Leu Glu Ser Glu Lys Ser			
	325	330	335	
	tat act cat gtg aag atg gaa cct gtt gag gaa ata aag gtg gaa gct			1056
	Tyr Thr His Val Lys Met Glu Pro Val Glu Glu Ile Lys Val Glu Ala			
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	gtt aag atg agt tct caa gtg gaa gat gtg aaa ttt agc cgt gag cag			1104
	Val Lys Met Ser Ser Gln Val Glu Asp Val Lys Phe Ser Arg Glu Gln			
	355	360	365	
	aaa tct gtg tat gtg aag aag gaa cca gtt gga gca aga aag gtg aaa			1152
	Lys Ser Val Tyr Val Lys Lys Glu Pro Val Gly Ala Arg Lys Val Lys			
	370	375	380	
	gtg gaa gat gga gat ttt ccg gtg gag aaa gat tgg tat ttg gtt ggg			1200
	Val Glu Asp Gly Asp Phe Pro Val Glu Lys Asp Trp Tyr Leu Val Gly			
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	agg tca ctt gtt act gct act tct acg agt aaa gga agg aaa tta gaa			1248
	Arg Ser Leu Val Thr Ala Thr Ser Thr Ser Lys Gly Arg Lys Leu Glu			
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	gat aat gag att gtg aat ttc aca ttt tct tct gtt gca aaa tgg aaa			1296
	Asp Asn Glu Ile Val Asn Phe Thr Phe Ser Ser Val Ala Lys Trp Lys			
	420	425	430	
	gtc cca aac att gtt cgt ttc tct acc aaa aga tgt gga gag att ggt			1344
	Val Pro Asn Ile Val Arg Phe Ser Thr Lys Arg Cys Gly Glu Ile Gly			
	435	440	445	
	aga ctt ccg atg gag tgg tca aat tgg gct gtg agc ctt tta aga tct			1392
	Arg Leu Pro Met Glu Trp Ser Asn Trp Ala Val Ser Leu Leu Arg Ser			
	450	455	460	
	ggt aag gtc aag atg tta gcc aga tgt gta gcg gcg cca cca ttt ctt			1440
	Gly Lys Val Lys Met Leu Gly Arg Cys Val Ala Ala Pro Pro Phe Leu			
	465	470	475	480

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gtg aag gca aaa gga ggc act ctt att att tgt ccc atg gca ttg tta Val Lys Ala Lys Gly Gly Thr Leu Ile Ile Cys Pro Met Ala Leu Leu 740 745 750	2256
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tct gtg tta gtt tac tat gga ggg gat agg aca cat gac gcg aaa gca Ser Val Leu Val Tyr Tyr Gly Gly Asp Arg Thr His Asp Ala Lys Ala 770 775 780	2352
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tat agg att gtt ctt gat gaa gct cac acg atc aaa tca tgg aaa act Tyr Arg Ile Val Leu Asp Glu Ala His Thr Ile Lys Ser Trp Lys Thr 820 825 830	2496
caa gct gct aaa gcc aca ttt gag tta tct tca cat tgc aga tgg tgt Gln Ala Ala Lys Ala Thr Phe Glu Leu Ser Ser His Cys Arg Trp Cys 835 840 845	2544
ctg act ggg act ccc tta caa aac aag ctc gaa gat cta tac agt ctt Leu Thr Gly Thr Pro Leu Glu Asn Lys Leu Glu Asp Leu Tyr Ser Leu 850 855 860	2592
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aca agg gac aaa gaa gga agt cta att ctt gaa ctt cct cca acc gac Thr Arg Asp Lys Glu Gly Ser Leu Ile Leu Glu Leu Pro Pro Thr Asp 915 920 925	2784
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Val Gln Val Ile Glu Cys Glu Gln Ser Glu Ala Glu Arg Asp Phe Tyr	
930 935 940	
aca gcc ttg ttc aag aga tcc aaa gtc caa ttt gac cag ttt gtg gca	2880
Thr Ala Leu Phe Lys Arg Ser Lys Val Gln Phe Asp Gln Phe Val Ala	
945 950 955 960	
caa gga aaa gtt ctt cac aac tat gca aac atc ctc gag ctc ctc ctc	2928
Gln Gly Lys Val Leu His Asn Tyr Ala Asn Ile Leu Glu Leu Leu Leu	
965 970 975	
cgt cta cgc caa tgt tgt aac cac cct ttt cta gtt atg agc cga gca	2976
Arg Leu Arg Arg Cys Cys Asn His Pro Phe Leu Val Met Ser Arg Ala	
980 985 990	
gat tca caa cag tac gct gac tta gat agc ctt gca agg agg ttt ctt	3024
Asp Ser Gln Gln Tyr Ala Asp Leu Asp Ser Leu Ala Arg Arg Phe Leu	
995 1000 1005	
gat aac aac cct gac tct gtt tcc caa aat gct cct tct cgg gca	3069
Asp Asn Asn Pro Asp Ser Val Ser Gln Asn Ala Pro Ser Arg Ala	
1010 1015 1020	
tat atc gaa gaa gtt atc caa gat tta cgc gat ggc aat agc aaa	3114
Tyr Ile Glu Glu Val Ile Gln Asp Leu Arg Asp Gly Asn Ser Lys	
1025 1030 1035	
gaa tgt cca ata tgt ctg gag tct gca gat gat ccc gtt ctc aca	3159
Glu Cys Pro Ile Cys Leu Glu Ser Ala Asp Asp Pro Val Leu Thr	
1040 1045 1050	
cct tgt gct cac aga atg tgc cgt gaa tgt ctc ctt act agc tgg	3204
Pro Cys Ala His Arg Met Cys Arg Glu Cys Leu Thr Ser Trp	
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cgc tct cca tct tgt ggt cta tgc cca atc tgc agg aca atc ctg	3249
Arg Ser Pro Ser Cys Gly Leu Cys Pro Ile Cys Arg Thr Ile Leu	
1070 1075 1080	
aag aga acc gaa ctt atc tca tgc cgc aca gat agt ata ttc cgt	3294
Lys Arg Thr Glu Leu Ile Ser Cys Pro Thr Asp Ser Ile Phe Arg	
1085 1090 1095	
gtt gat gtg gta aag aac tgg aag gag tct tca aag gtt tgc gag	3339
Val Asp Val Val Lys Asn Trp Lys Glu Ser Ser Lys Val Ser Glu	
1100 1105 1110	
ctg ctc aag tgc tta gag aag atc aag aaa tct ggt tgc ggc gag	3384
Leu Leu Lys Cys Leu Glu Lys Ile Lys Lys Ser Gly Ser Gly Glu	
1115 1120 1125	
aag agc att gtc ttt agc cag tgg act tca ttt ttg gat ctt ttg	3429
Lys Ser Ile Val Phe Ser Gln Trp Thr Ser Phe Leu Asp Leu Leu	
1130 1135 1140	
gag att cca ttg cga aga aga gga ttt gag ttt ctt aga ttc gat	3474
Glu Ile Pro Leu Arg Arg Arg Gly Phe Glu Phe Leu Arg Phe Asp	

1145	1150	1155	
ggg aag ctg gct cag aag gga aga gaa aag gtt ttg aaa gag ttc			3519
Gly Lys Leu Ala Gln Lys Gly Arg Glu Lys Val Leu Lys Glu Phe			
1160	1165	1170	
aat gaa acc aaa cag aaa acg att ctg ctt atg tct ctg aaa gct			3564
Asn Glu Thr Lys Gln Lys Thr Ile Leu Leu Met Ser Leu Lys Ala			
1175	1180	1185	
gga gga gtc ggt ctg aat cta act gca gct tca agt gtc ttc tta			3609
Gly Gly Val Gly Leu Asn Leu Thr Ala Ala Ser Ser Val Phe Leu			
1190	1195	1200	
atg gat cca tgg tgg aat cca gcg gtg gaa gag caa gcg atc atg			3654
Met Asp Pro Trp Trp Asn Pro Ala Val Glu Glu Gln Ala Ile Met			
1205	1210	1215	
aga att cat cga ata ggg cag aaa cga acg gta ttc gtc aga aga			3699
Arg Ile His Arg Ile Gly Gln Lys Arg Thr Val Phe Val Arg Arg			
1220	1225	1230	
ttc att gtc aag gat aca gtg gag gaa cgg atg cag caa gtt cag			3744
Phe Ile Val Lys Asp Thr Val Glu Glu Arg Met Gln Gln Val Gln			
1235	1240	1245	
gca agg aag cag agg atg att gcc gga gct ttg aca gat gaa gaa			3789
Ala Arg Lys Gln Arg Met Ile Ala Gly Ala Leu Thr Asp Glu Glu			
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gtc cgg tct gca aga ctt gag gag ctt aaa atg ttg ttc cga tga			3834
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Ser Ala Leu Pro Ala Glu Gln Ser Leu Val Asp Ser Asp Gly Ser Asn			
50 55 60			
Ser Glu Val Thr Leu Pro Ala Lys Asp Glu Val Ile Ser Asp Gly Phe			
65 70 75 80			

Thr Cys Val Asn Lys Glu Ile Val Glu Ser Asp Ser Phe Arg Glu Gln
85 90 95

Asn Leu Glu Ile Gly Glu Pro Asp Leu Asp Val Glu Asn Arg Lys Glu
100 105 110

Ala Met Ile Ile Asp Ser Ile Glu Asn Ser Val Val Glu Ile Val Ser
115 120 125

Ser Ala Ser Gly Asp Asp Cys Asn Val Lys Val Glu Val Val Glu Pro
130 135 140

Glu Leu Leu Val Glu Asn Leu Val Val Ala Lys Glu Glu Glu Glu Met
145 150 155 160

Ile Val Asp Ser Ile Glu Asp Ser Val Val Glu Ile Val Ser Thr Ala
165 170 175

Ser Gly Cys Asp Cys Asn Val Lys Val Glu Val Val Asp Pro Glu Leu
180 185 190

Cys Val Asp Asn Leu Val Val Val Lys Glu Glu Glu Met Ile Ala Asp
195 200 205

Ser Ile Ala Glu Ser Val Val Glu Thr Val Ser Arg Gly Leu Asp Tyr
210 215 220

Glu Cys Val Asp Val Lys Val Lys Glu Glu Pro Asp Leu Gly Thr Lys
225 230 235 240

Leu Glu Glu Asp Ser Val Phe Pro Asn Val Leu Glu Lys Lys Asp Gly
245 250 255

Val Ile Lys Val Leu Glu Asp Gln Pro Ser Glu Ile Asn Lys Lys Leu
260 265 270

Glu Gln Glu Asn Asp Asp Leu Phe Ser Ser Gly Asp Ser Asp Gly Thr
275 280 285

Ser Ala Lys Arg Arg Lys Met Glu Met Glu Ser Tyr Ala Pro Val Gly
290 295 300

Val Glu Ser Cys Ile Leu Ala Pro Thr Pro Leu Arg Val Val Lys Pro

305 310 315 320

Glu Lys Leu Asp Thr Pro Glu Val Ile Asp Leu Glu Ser Glu Lys Ser
325 330 335

Tyr Thr His Val Lys Met Glu Pro Val Glu Glu Ile Lys Val Glu Ala
340 345 350

Val Lys Met Ser Ser Gln Val Glu Asp Val Lys Phe Ser Arg Glu Gln
355 360 365

Lys Ser Val Tyr Val Lys Lys Glu Pro Val Gly Ala Arg Lys Val Lys
370 375 380

Val Glu Asp Gly Asp Phe Pro Val Glu Lys Asp Trp Tyr Leu Val Gly
385 390 395 400

Arg Ser Leu Val Thr Ala Thr Ser Thr Ser Lys Gly Arg Lys Leu Glu
405 410 415

Asp Asn Glu Ile Val Asn Phe Thr Phe Ser Ser Val Ala Lys Trp Lys
420 425 430

Val Pro Asn Ile Val Arg Phe Ser Thr Lys Arg Cys Gly Glu Ile Gly
435 440 445

Arg Leu Pro Met Glu Trp Ser Asn Trp Ala Val Ser Leu Leu Arg Ser
450 455 460

Gly Lys Val Lys Met Leu Gly Arg Cys Val Ala Ala Pro Pro Phe Leu
465 470 475 480

Thr Met Met Gln Glu Ile Met Leu Tyr Val Ser Phe Tyr Ile His Ser
485 490 495

Ser Ile Phe Thr Asp Val Ser Lys Ser Thr Trp Arg Ile Gly Ser Ser
500 505 510

Pro Asn Leu Glu Ser Thr Leu His Pro Leu Leu Gln Leu Phe Lys His
515 520 525

Leu Thr Ile Lys Pro Tyr Gln Lys Ala Glu Phe Thr Pro Glu Glu Leu
530 535 540

Asn Ser Arg Lys Arg Ser Leu Asn Leu Glu Asp Asp Tyr Asp Glu Arg
545 550 555 560

Ala Ala Leu Leu Ala Ile Ala Lys Arg Arg Lys Gly Cys Gln Gln Ser
565 570 575

Leu Glu Gln Asn Lys Asp Glu Glu Glu Ala Pro Glu Ser Tyr Met Asn
580 585 590

Arg Val Val Gly Ala Ala Asp Ser Tyr Asn Leu Glu Glu Met Glu Ala
595 600 605

Pro Ser Thr Leu Thr Cys Asn Leu Arg Pro Tyr Gln Lys Gln Ala Leu
610 615 620

Tyr Trp Met Ser Glu Ser Glu Lys Gly Ile Asp Val Glu Lys Ala Ala
625 630 635 640

Glu Thr Leu His Pro Cys Trp Glu Ala Tyr Arg Ile Cys Asp Glu Arg
645 650 655

Ala Pro Ser Ile Tyr Leu Asn Ile Phe Ser Gly Glu Ala Thr Ile Gln
660 665 670

Phe Pro Thr Ala Thr Gln Met Ala Arg Gly Gly Ile Leu Ala Asp Ala
675 680 685

Met Gly Leu Gly Lys Thr Val Met Thr Ile Ala Leu Ile Leu Ala Arg
690 695 700

Pro Gly Arg Gly Asn Pro Glu Asn Glu Asp Val Leu Val Ala Asp Val
705 710 715 720

Asn Ala Asp Lys Arg Asn Arg Lys Glu Ile His Met Ala Leu Thr Thr
725 730 735

Val Lys Ala Lys Gly Gly Thr Leu Ile Ile Cys Pro Met Ala Leu Leu
740 745 750

Ser Gln Trp Lys Asp Glu Leu Glu Thr His Ser Lys Pro Asp Thr Val
755 760 765

Ser Val Leu Val Tyr Tyr Gly Gly Asp Arg Thr His Asp Ala Lys Ala
770 775 780

Ile Ala Ser His Asp Val Val Leu Thr Thr Tyr Gly Val Leu Thr Ser
785 790 795 800

Ala Tyr Lys Gln Asp Met Ala Asn Ser Ile Phe His Arg Ile Asp Trp
805 810 815

Tyr Arg Ile Val Leu Asp Glu Ala His Thr Ile Lys Ser Trp Lys Thr
820 825 830

Gln Ala Ala Lys Ala Thr Phe Glu Leu Ser Ser His Cys Arg Trp Cys
835 840 845

Leu Thr Gly Thr Pro Leu Gln Asn Lys Leu Glu Asp Leu Tyr Ser Leu
850 855 860

Leu Cys Phe Leu His Val Glu Pro Trp Cys Asn Trp Ala Trp Trp Ser
865 870 875 880

Lys Leu Ile Gln Lys Pro Tyr Glu Asn Gly Asp Pro Arg Gly Leu Lys
885 890 895

Leu Ile Lys Ala Ile Leu Arg Pro Leu Met Leu Arg Arg Thr Lys Glu
900 905 910

Thr Arg Asp Lys Glu Gly Ser Leu Ile Leu Glu Leu Pro Pro Thr Asp
915 920 925

Val Gln Val Ile Glu Cys Glu Gln Ser Glu Ala Glu Arg Asp Phe Tyr
930 935 940

Thr Ala Leu Phe Lys Arg Ser Lys Val Gln Phe Asp Gln Phe Val Ala
945 950 955 960

Gln Gly Lys Val Leu His Asn Tyr Ala Asn Ile Leu Glu Leu Leu
965 970 975

Arg Leu Arg Gln Cys Cys Asn His Pro Phe Leu Val Met Ser Arg Ala
980 985 990

Asp Ser Gln Gln Tyr Ala Asp Leu Asp Ser Leu Ala Arg Arg Phe Leu
 995 1000 1005

Asp Asn Asn Pro Asp Ser Val Ser Gln Asn Ala Pro Ser Arg Ala
 1010 1015 1020

Tyr Ile Glu Glu Val Ile Gln Asp Leu Arg Asp Gly Asn Ser Lys
 1025 1030 1035

Glu Cys Pro Ile Cys Leu Glu Ser Ala Asp Asp Pro Val Leu Thr
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Pro Cys Ala His Arg Met Cys Arg Glu Cys Leu Leu Thr Ser Trp
 1055 1060 1065

Arg Ser Pro Ser Cys Gly Leu Cys Pro Ile Cys Arg Thr Ile Leu
 1070 1075 1080

Lys Arg Thr Glu Leu Ile Ser Cys Pro Thr Asp Ser Ile Phe Arg
 1085 1090 1095

Val Asp Val Val Lys Asn Trp Lys Glu Ser Ser Lys Val Ser Glu
 1100 1105 1110

Leu Leu Lys Cys Leu Glu Lys Ile Lys Lys Ser Gly Ser Gly Glu
 1115 1120 1125

Lys Ser Ile Val Phe Ser Gln Trp Thr Ser Phe Leu Asp Leu Leu
 1130 1135 1140

Glu Ile Pro Leu Arg Arg Arg Gly Phe Glu Phe Leu Arg Phe Asp
 1145 1150 1155

Gly Lys Leu Ala Gln Lys Gly Arg Glu Lys Val Leu Lys Glu Phe
 1160 1165 1170

Asn Glu Thr Lys Gln Lys Thr Ile Leu Leu Met Ser Leu Lys Ala
 1175 1180 1185

Gly Gly Val Gly Leu Asn Leu Thr Ala Ala Ser Ser Val Phe Leu
 1190 1195 1200

Met Asp Pro Trp Trp Asn Pro Ala Val Glu Glu Gln Ala Ile Met

1205

1210

1215

Arg Ile His Arg Ile Gly Gln Lys Arg Thr Val Phe Val Arg Arg
1220 1225 1230

Phe Ile Val Lys Asp Thr Val Glu Glu Arg Met Gln Gln Val Gln
1235 1240 1245

Ala Arg Lys Gln Arg Met Ile Ala Gly Ala Leu Thr Asp Glu Glu
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Ser Ser Thr Ile Ala Arg Lys Thr Trp Glu Leu Glu Asn Ser Ile Leu
5 10 15 20

aca gta gac tca cct gat tca acc tcc gac aac atc ttc tac tac gac 151
Thr Val Asp Ser Pro Asp Ser Thr Ser Asp Asn Ile Phe Tyr Tyr Asp
25 30 35

gat act tca cag act agg ttc cag caa gag aaa ccg tgg gag aat gat 199
Asp Thr Ser Gln Thr Arg Phe Gln Gln Glu Lys Pro Trp Glu Asn Asp
40 45 50

cct cac tac ttt aaa cga gtc aag atc tca gcg ctc gct ctt ctt aag 247
Pro His Tyr Phe Lys Arg Val Lys Ile Ser Ala Leu Ala Leu Leu Lys
55 60 65

atg gtg gtt cac gct cgc tct ggt ggt aca att gaa ata atg ggt ctt 295
Met Val Val His Ala Arg Ser Gly Gly Thr Ile Glu Ile Met Gly Leu
70 75 80

atg caa ggt aag acc gat ggt gat act atc att gtt atg gat gct ttt 343
Met Gln Gly Lys Thr Asp Gly Asp Thr Ile Ile Val Met Asp Ala Phe
85 90 95 100

gct tta cca gtg gaa ggt act gag aca agg gtt aat gct cag gat gat 391
Ala Leu Pro Val Glu Gly Thr Glu Thr Arg Val Asn Ala Gln Asp Asp
105 110 115

gct tat gag tac atg gtt gag tat tca cag acc aac aag ctc gcg ggg 439
Ala Tyr Glu Tyr Met Val Glu Tyr Ser Gln Thr Asn Lys Leu Ala Gly

	120	125	130	
	cgg ctg gag aat gtt gtt gga tgg tat cac tct cac cct gga tat gga			487
	Arg Leu Glu Asn Val Val Gly Trp Tyr His Ser His Pro Gly Tyr Gly			
	135	140	145	
	tgc tgg ctc tcc ggt att gat gtt tct acg cag acg ctt aac caa cag			535
	Cys Trp Trp Leu Ser Gly Ile Asp Val Ser Thr Gln Thr Leu Asn Gln Gln			
	150	155	160	
	cat cag gag cca ttt tta gct gtt gtt att gat ccc aca agg act gtt			583
	His Gln Glu Pro Phe Leu Ala Val Val Ile Asp Pro Thr Arg Thr Val			
	165	170	175	180
	tca gct ggt aag gtt gag att ggt gct ttc aga aca tac tct aaa gga			631
	Ser Ala Gly Lys Val Glu Ile Gly Ala Phe Arg Thr Tyr Ser Lys Gly			
	185	190	195	
	tat aag cct cca gat gaa cct gtt tct gag tat caa act att cct tta			679
	Tyr Lys Pro Pro Asp Glu Pro Val Ser Glu Tyr Gln Thr Ile Pro Leu			
	200	205	210	
	aat aag att gag gac ttt ggt gtt cac tgc aaa cag tac tat tca tta			727
	Asn Lys Ile Glu Asp Phe Gly Val His Cys Lys Gln Tyr Tyr Ser Leu			
	215	220	225	
	gat gtc act tat ttc aag tca tct ctt gat tct cac ctt ctg gat cta			775
	Asp Val Thr Tyr Phe Lys Ser Ser Leu Asp Ser His Leu Leu Asp Leu			
	230	235	240	
	cta tgg aac aag tac tgg gtg aac act ctt tct tct cca ctg ctg			823
	Leu Trp Asn Lys Tyr Trp Val Asn Thr Leu Ser Ser Ser Pro Leu Leu			
	245	250	255	260
	ggt aat gga gac tat gtt gct gga caa ata tca gac tta gct gag aag			871
	Gly Asn Gly Asp Tyr Val Ala Gly Gln Ile Ser Asp Leu Ala Glu Lys			
	265	270	275	
	ctt gag caa gcc gag agt cat ctg gtt cag tct cgc ttt gga gga gtt			919
	Leu Glu Gln Ala Glu Ser His Leu Val Gln Ser Arg Phe Gly Gly Val			
	280	285	290	
	gtg cca tca tcc ctt cat aag aaa aaa gaa gat gag tct caa cta act			967
	Val Pro Ser Ser Leu His Lys Lys Lys Glu Asp Glu Ser Gln Leu Thr			
	295	300	305	
	aag ata act cgg gat agc gca aag ata act gtg gaa cag gtc cat gga			1015
	Lys Ile Thr Arg Asp Ser Ala Lys Ile Thr Val Glu Gln Val His Gly			
	310	315	320	
	cta atg tgc cag gtc ata aaa gat gaa tta ttc aac tca atg cgt cag			1063
	Leu Met Ser Gln Val Ile Lys Asp Glu Leu Phe Asn Ser Met Arg Gln			
	325	330	335	340
	tcc aac aac aaa tct ccc act gac tgc tgc gat cca gac cct atg att			1111
	Ser Asn Asn Lys Ser Pro Thr Asp Ser Ser Asp Pro Asp Pro Met Ile			
	345	350	355	

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Thr Tyr

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cgcggccgct aaaaaaaaaac aggaaattga aaaaaattca tccattccaa catctttatt 1280
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ccctccctc ccgtgttgca ttggtgctgg cccc 1374

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35 40 45

Trp Glu Asn Asp Pro His Tyr Phe Lys Arg Val Lys Ile Ser Ala Leu
50 55 60

Ala Leu Leu Lys Met Val Val His Ala Arg Ser Gly Gly Thr Ile Glu
65 70 75 80

Ile Met Gly Leu Met Gln Gly Lys Thr Asp Gly Asp Thr Ile Ile Val
85 90 95

Met Asp Ala Phe Ala Leu Pro Val Glu Gly Thr Glu Thr Arg Val Asn
100 105 110

Ala Gln Asp Asp Ala Tyr Glu Tyr Met Val Glu Tyr Ser Gln Thr Asn
115 120 125

Lys Leu Ala Gly Arg Leu Glu Asn Val Val Gly Trp Tyr His Ser His
130 135 140

Pro Gly Tyr Gly Cys Trp Leu Ser Gly Ile Asp Val Ser Thr Gln Thr
145 150 155 160

Leu Asn Gln Gln His Gln Glu Pro Phe Leu Ala Val Val Ile Asp Pro

165

170

175

Thr Arg Thr Val Ser Ala Gly Lys Val Glu Ile Gly Ala Phe Arg Thr
180 185 190

Tyr Ser Lys Gly Tyr Lys Pro Pro Asp Glu Pro Val Ser Glu Tyr Gln
195 200 205

Thr Ile Pro Leu Asn Lys Ile Glu Asp Phe Gly Val His Cys Lys Gln
210 215 220

Tyr Tyr Ser Leu Asp Val Thr Tyr Phe Lys Ser Ser Leu Asp Ser His
225 230 235 240

Leu Leu Asp Leu Leu Trp Asn Lys Tyr Trp Val Asn Thr Leu Ser Ser
245 250 255

Ser Pro Leu Leu Gly Asn Gly Asp Tyr Val Ala Gly Gln Ile Ser Asp
260 265 270

Leu Ala Glu Lys Leu Glu Gln Ala Glu Ser His Leu Val Gln Ser Arg
275 280 285

Phe Gly Gly Val Val Pro Ser Ser Leu His Lys Lys Lys Glu Asp Glu
290 295 300

Ser Gln Leu Thr Lys Ile Thr Arg Asp Ser Ala Lys Ile Thr Val Glu
305 310 315 320

Gln Val His Gly Leu Met Ser Gln Val Ile Lys Asp Glu Leu Phe Asn
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340 345 350

Asp Pro Met Ile Thr Tyr
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gct gtt gct cgt tct tct ggc tcc gac gat gac gaa gta gcc gcc gcc Ala Val Ala Arg Ser Ser Gly Ser Asp Asp Asp Glu Val Ala Ala Ala	35	40	45	144
gac gaa tca cca gtc tcc gac gga gag gct gct ccc gta gaa gat gat Asp Glu Ser Pro Val Ser Asp Gly Glu Ala Ala Pro Val Glu Asp Asp	50	55	60	192
tac gag gac gaa gaa gat gag gaa aaa gct gaa atc agc aaa cgt gag Tyr Glu Asp Glu Glu Asp Glu Glu Lys Ala Glu Ile Ser Lys Arg Glu	65	70	75	240
aaa gcc aga ctt aaa gag atg cag aag ttg aag aag cag aag att caa Lys Ala Arg Leu Lys Glu Met Gln Lys Leu Lys Lys Gln Lys Ile Gln	85	90	95	288
gag atg ctg gag tcc cag aat gct tcc att gac gcg gat atg aac aat Glu Met Leu Glu Ser Gln Asn Ala Ser Ile Asp Ala Asp Met Asn Asn	100	105	110	336
aag gga aaa ggg aga ctg aag tat ctt ctg cag caa act gag tta ttt Lys Gly Lys Gly Arg Leu Lys Tyr Leu Leu Gln Gln Thr Glu Leu Phe	115	120	125	384
gcc cac ttt gct aaa agt gat gga tct tct tct cag aag aag gca aaa Ala His Phe Ala Lys Ser Asp Gly Ser Ser Ser Gln Lys Lys Ala Lys	130	135	140	432
gga agg gga cgt cat gct tcc aaa ata act gaa gag gag gaa gac gaa Gly Arg Gly Arg His Ala Ser Lys Ile Thr Glu Glu Glu Glu Asp Glu	145	150	155	480
gag tat cta aag gaa gaa gag gat ggc tta act gga tct gga aac aca Glu Tyr Leu Lys Glu Glu Glu Asp Gly Leu Thr Gly Ser Gly Asn Thr	165	170	175	528
cgg tta ctc aca cag ccc tct tgt att caa ggg aag atg aga gat tac Arg Leu Leu Thr Gln Pro Ser Cys Ile Gln Gly Lys Met Arg Asp Tyr	180	185	190	576
caa tta gct ggt ttg aac tgg ctc att cgt ctt tat gag aat ggc ata Gln Leu Ala Gly Leu Asn Trp Leu Ile Arg Leu Tyr Glu Asn Gly Ile	195	200	205	624
aat gga att ctt gct gat gaa atg ggt ctg ggg aag acg ctt caa acg Asn Gly Ile Leu Ala Asp Glu Met Gly Leu Gly Lys Thr Leu Gln Thr	210	215	220	672
att tct ttg ttg gca tat ctt cat gaa tac agg gga atc aat ggt ccc Ile Ser Leu Leu Ala Tyr Leu His Glu Tyr Arg Gly Ile Asn Gly Pro	225	230	235	720

cat atg gtg gtt gct cca aaa tca aca ctt ggt aat tgg atg aac gaa	768
His Met Val Val Ala Pro Lys Ser Thr Leu Gly Asn Trp Met Asn Glu	
245 250 255	
att cgc cgg ttt tgt cct gtc cta cgt gct gtg aag ttc ctt ggt aat	816
Ile Arg Arg Phe Cys Pro Val Leu Arg Ala Val Lys Phe Leu Gly Asn	
260 265 270	
cct gag gag agg aga cat att cga gaa gac ctg cta gtt gct ggg aaa	864
Pro Glu Glu Arg Arg His Ile Arg Glu Asp Leu Leu Val Ala Gly Lys	
275 280 285	
ttt gat att tgt gtc aca agc ttt gag atg gcc atc aaa gag aag aca	912
Phe Asp Ile Cys Val Thr Ser Phe Glu Met Ala Ile Lys Glu Lys Thr	
290 295 300	
gca ctt cgt cgg ttt agc tgg cgt tat att atc att gat gaa gcg cat	960
Ala Leu Arg Arg Phe Ser Trp Arg Tyr Ile Ile Asp Glu Ala His	
305 310 315 320	
cga atc aag aac gag aat tca ctc ctt tct aaa acc atg aga ctt ttt	1008
Arg Ile Lys Asn Glu Asn Ser Leu Leu Ser Lys Thr Met Arg Leu Phe	
325 330 335	
agc acc aat tat cgg ctt ctt atc acg ggg acc ccc ctt cag aat aat	1056
Ser Thr Asn Tyr Arg Leu Leu Ile Thr Gly Thr Pro Leu Gln Asn Asn	
340 345 350	
ctc cat gaa ctg tgg gct ctt cta aat ttt ctt ctg cct gag att ttt	1104
Leu His Glu Leu Trp Ala Leu Leu Asn Phe Leu Leu Pro Glu Ile Phe	
355 360 365	
agt tca gca gag act ttt gat gaa tgg ttt caa att tct ggt gag aat	1152
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370 375 380	
gac cag caa gaa gtt gtg caa caa ctg cac aag gtt ctt cga cca ttt	1200
Asp Gln Gln Glu Val Val Gln Gln Leu His Lys Val Leu Arg Pro Phe	
385 390 395 400	
ctt ctt cga aga cta aag tca gat gtt gag aaa ggt ttg cca cgg aag	1248
Leu Leu Arg Arg Leu Lys Ser Asp Val Glu Lys Gly Leu Pro Pro Lys	
405 410 415	
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Lys Glu Thr Ile Leu Lys Val Gly Met Ser Gln Met Gln Lys Gln Tyr	
420 425 430	
tac aag gct tta ctg cag aag gat ctt gaa gcg gtt aat gct ggt gga	1344
Tyr Lys Ala Leu Leu Gln Lys Asp Leu Glu Ala Val Asn Ala Gly Gly	
435 440 445	
gaa cgc aaa cgt ctg cta aac att gca atg caa ctg cgt aaa tgc tgc	1392
Glu Arg Lys Arg Leu Leu Asn Ile Ala Met Gln Leu Arg Lys Cys Cys	
450 455 460	

aat cac ccc tat ctc ttc cag ggt gca gaa cct ggt ccc cca tat acc	1440
Asn His Pro Tyr Leu Phe Gln Gly Ala Glu Pro Gly Pro Pro Tyr Thr	
465 470 475 480	
aca gga gat cac ctt ata aca aat gct ggt aag atg gtt ctc ttg gat	1488
Thr Gly Asp His Leu Ile Thr Asn Ala Gly Lys Met Val Leu Leu Asp	
485 490 495	
aaa ttg ctt cct aag ttg aaa gaa cgt gat tca agg gtg ctg ata ttt	1536
Lys Leu Leu Pro Lys Leu Lys Glu Arg Asp Ser Arg Val Leu Ile Phe	
500 505 510	
tct cag atg aca aga ctt ttg gat att ctt gag gac tat tta atg tat	1584
Ser Gln Met Thr Arg Leu Leu Asp Ile Leu Glu Asp Tyr Leu Met Tyr	
515 520 525	
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Arg Gly Tyr Leu Tyr Cys Arg Ile Asp Gly Asn Thr Gly Gly Asp Glu	
530 535 540	
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Arg Asp Ala Ser Ile Glu Ala Tyr Asn Lys Pro Gly Ser Glu Lys Phe	
545 550 555 560	
gtt ttc ttg tta tct act aga gct gga ggg ctt ggt atc aat ctt gct	1728
Val Phe Leu Leu Ser Thr Arg Ala Gly Leu Gly Ile Asn Leu Ala	
565 570 575	
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Thr Ala Asp Val Val Ile Leu Tyr Asp Ser Asp Trp Asn Pro Gln Val	
580 585 590	
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Asp Leu Gln Ala Gln Asp Arg Ala His Arg Ile Gly Gln Lys Lys Glu	
595 600 605	
gtt caa gtg ttt cga ttc tgc act gag tct gct att gag gag aaa gtg	1872
Val Gln Val Phe Arg Phe Cys Thr Glu Ser Ala Ile Glu Glu Lys Val	
610 615 620	
att gaa aga gct tac aag aag tta gca ctt gat gct ctg gtt att caa	1920
Ile Glu Arg Ala Tyr Lys Lys Leu Ala Leu Asp Ala Leu Val Ile Gln	
625 630 635 640	
caa ggg aga ttg gca gaa cag aaa agt aag tct gtc aat aag gat gag	1968
Gln Gly Arg Leu Ala Glu Gln Lys Ser Lys Ser Val Asn Lys Asp Glu	
645 650 655	
ttg ctt caa atg gta aga tat ggt gct gag atg gtg ttc agt tct aaa	2016
Leu Leu Gln Met Val Arg Tyr Gly Ala Glu Met Val Phe Ser Ser Lys	
660 665 670	
gat agc aca atc aca gac gag gat att gat aga atc att gcc aaa gga	2064
Asp Ser Thr Ile Thr Asp Glu Asp Ile Asp Arg Ile Ile Ala Lys Gly	
675 680 685	
gaa gag gca aca gct gaa ctt gat gct aag atg aag aaa ttc aca gaa	2112

Glu Glu Ala Thr Ala Glu Leu Asp Ala Lys Met Lys Lys Phe Thr Glu	
690 695 700	
gat gct ata cag ttt aaa atg gat gac agt gct gac ttc tat gat ttt	2160
Asp Ala Ile Gln Phe Lys Met Asp Asp Ser Ala Asp Phe Tyr Asp Phe	
705 710 715 720	
gat gat gac aat aag gat gaa aac aag ctc gat ttt aaa aag att gta	2208
Asp Asp Asp Asn Lys Asp Glu Asn Lys Leu Asp Phe Lys Lys Ile Val	
725 730 735	
agc gac aat tgg aat gat ccc ccc aag cgg gag aga aag cgc aac tac	2256
Ser Asp Asn Trp Asn Asp Pro Pro Lys Arg Glu Arg Lys Arg Asn Tyr	
740 745 750	
tct gaa tct gag tac ttt aag caa aca ttg cgg caa ggt gct cca gct	2304
Ser Glu Ser Glu Tyr Phe Lys Gln Thr Leu Arg Gln Gly Ala Pro Ala	
755 760 765	
aaa cct aaa gag cct aga att ccg cgc atg ccc cag ttg cac gat ttc	2352
Lys Pro Lys Glu Pro Arg Ile Pro Arg Met Pro Gln Leu His Asp Phe	
770 775 780	
cag ttc ttt aac att cag aga ttg acc gag ttg tat gaa aag gaa gta	2400
Gln Phe Phe Asn Ile Gln Arg Leu Thr Glu Leu Tyr Glu Lys Glu Val	
785 790 795 800	
cgt tat ctc atg caa aca cat cag aaa aat cag ttg aaa gac aca att	2448
Arg Tyr Leu Met Gln Thr His Gln Lys Asn Gln Leu Lys Asp Thr Ile	
805 810 815	
gat gtt gaa gaa cca gaa ggt ggg gat ccc tta act act gaa gaa gta	2496
Asp Val Glu Glu Glu Pro Glu Gly Gly Asp Pro Leu Thr Thr Glu Glu Val	
820 825 830	
gaa gaa aag gag gga tta ttg gag gag ggt ttc tca aca tgg agc aga	2544
Glu Glu Lys Glu Gly Leu Leu Glu Glu Gly Phe Ser Thr Trp Ser Arg	
835 840 845	
aga gat ttt aat act ttc ctc agg gct tgt gag aag tat ggc cgc aac	2592
Arg Asp Phe Asn Thr Phe Leu Arg Ala Cys Glu Lys Tyr Gly Arg Asn	
850 855 860	
gac ata aaa agc att gcc tct gag atg gaa ggg aaa aca gag gaa gaa	2640
Asp Ile Lys Ser Ile Ala Ser Glu Met Glu Gly Lys Thr Glu Glu Glu	
865 870 875 880	
gtt gaa aga tat gcc aaa gta ttt aaa gag cgg tac aag gag ctg aac	2688
Val Glu Arg Tyr Ala Lys Val Phe Lys Glu Arg Tyr Lys Glu Leu Asn	
885 890 895	
gac tat gat aga atc att aag aac att gag agg gga gag gca agg atc	2736
Asp Tyr Asp Arg Ile Ile Lys Asn Ile Glu Arg Gly Glu Ala Arg Ile	
900 905 910	
tct agg aaa gac gaa atc atg aag gcc ata ggg aag aaa ctg gat cgc	2784
Ser Arg Lys Asp Glu Ile Met Lys Ala Ile Gly Lys Lys Leu Asp Arg	

	915	920	925	
	tac aga aac cct tgg ctg gaa ctg aag att caa tat ggt cag aac aaa			2832
	Tyr Arg Asn Pro Trp Leu Glu Leu Lys Ile Gln Tyr Gly Gln Asn Lys			
	930	935	940	
	ggc aag ctg tac aat gaa gag tgt gac cgt ttc atg atc tgc atg att			2880
	Gly Lys Leu Tyr Asn Glu Glu Cys Asp Arg Phe Met Ile Cys Met Ile			
	945	950	955	960
	cac aaa ctt ggt tat ggg aat tgg gat gag cta aag gca gca ttt agg			2928
	His Lys Leu Gly Tyr Gly Asn Trp Asp Glu Leu Lys Ala Ala Phe Arg			
	965	970	975	
	aca tcg tct gtg ttc agg ttt gac tgg ttt gtg aaa tcc cgc acg agt			2976
	Thr Ser Ser Val Phe Arg Phe Asp Trp Phe Val Lys Ser Arg Thr Ser			
	980	985	990	
	cag gaa ctt gca aga aga tgc gac act ctg att cga ctg atc gag aaa			3024
	Gln Glu Leu Ala Arg Arg Cys Asp Thr Leu Ile Arg Leu Ile Glu Lys			
	995	1000	1005	
	gag aac cag gag ttt gat gaa aga gag agg caa gcc cgc aaa gag			3069
	Glu Asn Gln Glu Phe Asp Glu Arg Glu Arg Gln Ala Arg Lys Glu			
	1010	1015	1020	
	aag aag ctc gcg aag agt gca aca cca tca aag cga cct tta gga			3114
	Lys Lys Leu Ala Lys Ser Ala Thr Pro Ser Lys Arg Pro Leu Gly			
	1025	1030	1035	
	aga caa gca agt gag agt cct tca tcg acg aag aag cgg aag cac			3159
	Arg Gln Ala Ser Glu Ser Pro Ser Ser Thr Lys Lys Arg Lys His			
	1040	1045	1050	
	ctg tcg atg aga tga			3174
	Leu Ser Met Arg			
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35 40 45

Asp Glu Ser Pro Val Ser Asp Gly Glu Ala Ala Pro Val Glu Asp Asp
50 55 60

Tyr Glu Asp Glu Glu Asp Glu Glu Lys Ala Glu Ile Ser Lys Arg Glu
65 70 75 80

Lys Ala Arg Leu Lys Glu Met Gln Lys Leu Lys Lys Gln Lys Ile Gln
85 90 95

Glu Met Leu Glu Ser Gln Asn Ala Ser Ile Asp Ala Asp Met Asn Asn
100 105 110

Lys Gly Lys Gly Arg Leu Lys Tyr Leu Leu Gln Gln Thr Glu Leu Phe
115 120 125

Ala His Phe Ala Lys Ser Asp Gly Ser Ser Ser Gln Lys Lys Ala Lys
130 135 140

Gly Arg Gly Arg His Ala Ser Lys Ile Thr Glu Glu Glu Glu Asp Glu
145 150 155 160

Glu Tyr Leu Lys Glu Glu Glu Asp Gly Leu Thr Gly Ser Gly Asn Thr
165 170 175

Arg Leu Leu Thr Gln Pro Ser Cys Ile Gln Gly Lys Met Arg Asp Tyr
180 185 190

Gln Leu Ala Gly Leu Asn Trp Leu Ile Arg Leu Tyr Glu Asn Gly Ile
195 200 205

Asn Gly Ile Leu Ala Asp Glu Met Gly Leu Gly Lys Thr Leu Gln Thr
210 215 220

Ile Ser Leu Leu Ala Tyr Leu His Glu Tyr Arg Gly Ile Asn Gly Pro
225 230 235 240

His Met Val Val Ala Pro Lys Ser Thr Leu Gly Asn Trp Met Asn Glu
245 250 255

Ile Arg Arg Phe Cys Pro Val Leu Arg Ala Val Lys Phe Leu Gly Asn
260 265 270

Pro Glu Glu Arg Arg His Ile Arg Glu Asp Leu Leu Val Ala Gly Lys
275 280 285

Phe Asp Ile Cys Val Thr Ser Phe Glu Met Ala Ile Lys Glu Lys Thr

290

295

300

Ala Leu Arg Arg Phe Ser Trp Arg Tyr Ile Ile Ile Asp Glu Ala His
305 310 315 320

Arg Ile Lys Asn Glu Asn Ser Leu Leu Ser Lys Thr Met Arg Leu Phe
325 330 335

Ser Thr Asn Tyr Arg Leu Leu Ile Thr Gly Thr Pro Leu Gln Asn Asn
340 345 350

Leu His Glu Leu Trp Ala Leu Leu Asn Phe Leu Leu Pro Glu Ile Phe
355 360 365

Ser Ser Ala Glu Thr Phe Asp Glu Trp Phe Gln Ile Ser Gly Glu Asn
370 375 380

Asp Gln Gln Glu Val Val Gln Gln Leu His Lys Val Leu Arg Pro Phe
385 390 395 400

Leu Leu Arg Arg Leu Lys Ser Asp Val Glu Lys Gly Leu Pro Pro Lys
405 410 415

Lys Glu Thr Ile Leu Lys Val Gly Met Ser Gln Met Gln Lys Gln Tyr
420 425 430

Tyr Lys Ala Leu Leu Gln Lys Asp Leu Glu Ala Val Asn Ala Gly Gly
435 440 445

Glu Arg Lys Arg Leu Leu Asn Ile Ala Met Gln Leu Arg Lys Cys Cys
450 455 460

Asn His Pro Tyr Leu Phe Gln Gly Ala Glu Pro Gly Pro Pro Tyr Thr
465 470 475 480

Thr Gly Asp His Leu Ile Thr Asn Ala Gly Lys Met Val Leu Leu Asp
485 490 495

Lys Leu Leu Pro Lys Leu Lys Glu Arg Asp Ser Arg Val Leu Ile Phe
500 505 510

Ser Gln Met Thr Arg Leu Leu Asp Ile Leu Glu Asp Tyr Leu Met Tyr
515 520 525

Arg Gly Tyr Leu Tyr Cys Arg Ile Asp Gly Asn Thr Gly Gly Asp Glu
530 535 540

Arg Asp Ala Ser Ile Glu Ala Tyr Asn Lys Pro Gly Ser Glu Lys Phe
545 550 555 560

Val Phe Leu Leu Ser Thr Arg Ala Gly Gly Leu Gly Ile Asn Leu Ala
565 570 575

Thr Ala Asp Val Val Ile Leu Tyr Asp Ser Asp Trp Asn Pro Gln Val
580 585 590

Asp Leu Gln Ala Gln Asp Arg Ala His Arg Ile Gly Gln Lys Lys Glu
595 600 605

Val Gln Val Phe Arg Phe Cys Thr Glu Ser Ala Ile Glu Glu Lys Val
610 615 620

Ile Glu Arg Ala Tyr Lys Lys Leu Ala Leu Asp Ala Leu Val Ile Gln
625 630 635 640

Gln Gly Arg Leu Ala Glu Gln Lys Ser Lys Ser Val Asn Lys Asp Glu
645 650 655

Leu Leu Gln Met Val Arg Tyr Gly Ala Glu Met Val Phe Ser Ser Lys
660 665 670

Asp Ser Thr Ile Thr Asp Glu Asp Ile Asp Arg Ile Ile Ala Lys Gly
675 680 685

Glu Glu Ala Thr Ala Glu Leu Asp Ala Lys Met Lys Lys Phe Thr Glu
690 695 700

Asp Ala Ile Gln Phe Lys Met Asp Asp Ser Ala Asp Phe Tyr Asp Phe
705 710 715 720

Asp Asp Asp Asn Lys Asp Glu Asn Lys Leu Asp Phe Lys Lys Ile Val
725 730 735

Ser Asp Asn Trp Asn Asp Pro Pro Lys Arg Glu Arg Lys Arg Asn Tyr
740 745 750

Ser Glu Ser Glu Tyr Phe Lys Gln Thr Leu Arg Gln Gly Ala Pro Ala
755 760 765

Lys Pro Lys Glu Pro Arg Ile Pro Arg Met Pro Gln Leu His Asp Phe
770 775 780

Gln Phe Phe Asn Ile Gln Arg Leu Thr Glu Leu Tyr Glu Lys Glu Val
785 790 795 800

Arg Tyr Leu Met Gln Thr His Gln Lys Asn Gln Leu Lys Asp Thr Ile
805 810 815

Asp Val Glu Glu Pro Glu Gly Gly Asp Pro Leu Thr Thr Glu Glu Val
820 825 830

Glu Glu Lys Glu Gly Leu Leu Glu Glu Gly Phe Ser Thr Trp Ser Arg
835 840 845

Arg Asp Phe Asn Thr Phe Leu Arg Ala Cys Glu Lys Tyr Gly Arg Asn
850 855 860

Asp Ile Lys Ser Ile Ala Ser Glu Met Glu Gly Lys Thr Glu Glu Glu
865 870 875 880

Val Glu Arg Tyr Ala Lys Val Phe Lys Glu Arg Tyr Lys Glu Leu Asn
885 890 895

Asp Tyr Asp Arg Ile Ile Lys Asn Ile Glu Arg Gly Glu Ala Arg Ile
900 905 910

Ser Arg Lys Asp Glu Ile Met Lys Ala Ile Gly Lys Lys Leu Asp Arg
915 920 925

Tyr Arg Asn Pro Trp Leu Glu Leu Lys Ile Gln Tyr Gly Gln Asn Lys
930 935 940

Gly Lys Leu Tyr Asn Glu Glu Cys Asp Arg Phe Met Ile Cys Met Ile
945 950 955 960

His Lys Leu Gly Tyr Gly Asn Trp Asp Glu Leu Lys Ala Ala Phe Arg
965 970 975

Thr Ser Ser Val Phe Arg Phe Asp Trp Phe Val Lys Ser Arg Thr Ser
980 985 990

Gln Glu Leu Ala Arg Arg Cys Asp Thr Leu Ile Arg Leu Ile Glu Lys
995 1000 1005

Glu Asn Gln Glu Phe Asp Glu Arg Glu Arg Gln Ala Arg Lys Glu
1010 1015 1020

Lys Lys Leu Ala Lys Ser Ala Thr Pro Ser Lys Arg Pro Leu Gly
1025 1030 1035

Arg Gln Ala Ser Glu Ser Pro Ser Ser Thr Lys Lys Arg Lys His
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Leu Ser Met Arg
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Met Ala Thr Thr Thr Thr Thr Thr Ala Arg Phe Ser Asp Ser Tyr
5 10 15

gag ttc agc aac aca agc ggc aat agc ttc ttc gcc gcc gag tca tct 152
Glu Phe Ser Asn Thr Ser Gly Asn Ser Phe Phe Ala Ala Glu Ser Ser
20 25 30

ctt gat tat ccg acg gaa ttt ctc acg cca ccg gag gta tca gct ctt 200
Leu Asp Tyr Pro Thr Glu Phe Leu Thr Pro Pro Glu Val Ser Ala Leu
35 40 45

aaa ctt ctg tct aac tgc ctc gag tct gtt ttc gac tcg ccg gag acg 248
Lys Leu Leu Ser Asn Cys Leu Glu Ser Val Phe Asp Ser Pro Glu Thr
50 55 60 65

ttc tac agc gat gct aag cta gtt ctc gcc gcc gcc cgg gaa gtt tct 296
Phe Tyr Ser Asp Ala Lys Leu Val Leu Ala Gly Gly Arg Glu Val Ser
70 75 80

ttt cac cgt tgt att ctt tcc gcg aga att cct gtc ttc aaa agc gct 344
Phe His Arg Cys Ile Leu Ser Ala Arg Ile Pro Val Phe Lys Ser Ala
85 90 95

tta gcc acc gtg aag gaa caa aaa tcc tcc acc acc gtg aag ctc cag 392

Leu Ala Thr Val Lys Glu Gln Lys Ser Ser Thr Thr Val Lys Leu Gln	
100 105 110	
ctg aaa gag atc gcc aga gat tac gaa gtc ggc ttt gac tcg gtt gtg	440
Leu Lys Glu Ile Ala Arg Asp Tyr Glu Val Gly Phe Asp Ser Val Val	
115 120 125	
gcg gtt ttg gcg tat gtt tac agc ggc aga gtg agg tcc ccg ccg aag	488
Ala Val Leu Ala Tyr Val Tyr Ser Gly Arg Val Arg Ser Pro Pro Lys	
130 135 140 145	
gga gct tct gct tgc gta gac gac gat tgt tgc cac gtg gct tgc cgg	536
Gly Ala Ser Ala Cys Val Asp Asp Cys Cys His Val Ala Cys Arg	
150 155 160	
tca aag gtg gat ttc atg gtg gag gtt ctt tat ctg tct ttc gtt ttc	584
Ser Lys Val Asp Phe Met Val Glu Val Leu Tyr Leu Ser Phe Val Phe	
165 170 175	
cag att caa gaa tta gtt act ctg tat gag agg cag ttc ttg gaa att	632
Gln Ile Gln Glu Leu Val Thr Leu Tyr Glu Arg Gln Phe Leu Glu Ile	
180 185 190	
gta gac aaa gtt gta gtc gaa gac atc ttg gtt ata ttc aag ctt gat	680
Val Asp Lys Val Val Val Glu Asp Ile Leu Val Ile Phe Lys Leu Asp	
195 200 205	
act cta tgt ggt aca aca tac aag aag ctt ttg gat aga tgc ata gaa	728
Thr Leu Cys Gly Thr Thr Tyr Lys Lys Leu Leu Asp Arg Cys Ile Glu	
210 215 220 225	
att atc gtg aag tct gat ata gaa cta gtt agt ctt gag aag tct tta	776
Ile Ile Val Lys Ser Asp Ile Glu Leu Val Ser Leu Glu Lys Ser Leu	
230 235 240	
cct caa cac att ttc aag caa atc ata gac atc cgc gaa gcg ctc tgt	824
Pro Gln His Ile Phe Lys Gln Ile Ile Asp Ile Arg Glu Ala Leu Cys	
245 250 255	
cta gag cca cct aaa cta gaa agg cat gtc aag aac ata tac aag gcg	872
Leu Glu Pro Pro Lys Leu Glu Arg His Val Lys Asn Ile Tyr Lys Ala	
260 265 270	
cta gac tca gat gat gtt gag ctt gtc aag atg ctt ttg cta gaa gga	920
Leu Asp Ser Asp Asp Val Glu Leu Val Lys Met Leu Leu Leu Glu Gly	
275 280 285	
cac acc aat ctc gat gag gcg tat gct ctt cat ttt gct atc gct cac	968
His Thr Asn Leu Asp Glu Ala Tyr Ala Leu His Phe Ala Ile Ala His	
290 295 300 305	
tgc gct gtg aag acc gcg tat gat ctc ctc gag ctt gag ctt gcg gat	1016
Cys Ala Val Lys Thr Ala Tyr Asp Leu Leu Glu Leu Ala Asp	
310 315 320	
gtt aac ctt aga aat ccg agg gga tac act gtg ctt cat gtt gct gcg	1064
Val Asn Leu Arg Asn Pro Arg Gly Tyr Thr Val Leu His Val Ala Ala	

325	330	335	
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aat att tta gac aca aca ttg gat ggt aga acc gct tta gtg att gta Asn Ile Leu Asp Thr Thr Leu Asp Gly Arg Thr Ala Leu Val Ile Val 355 360 365			1160
aaa cga ctc act aaa gcg gat gac tac aaa act agt acg gag gac ggt Lys Arg Leu Thr Lys Ala Asp Tyr Lys Thr Ser Thr Glu Asp Gly 370 375 380 385			1208
acg cct tct ctg aaa ggc gga tta tgc ata gag gta ctt gag cat gaa Thr Pro Ser Leu Lys Gly Gly Leu Cys Ile Glu Val Leu Glu His Glu 390 395 400			1256
caa aaa cta gaa tat ttg tgc cct ata gag gct tca ctt tct ctt cca Gln Lys Leu Glu Tyr Leu Ser Pro Ile Glu Ala Ser Leu Ser Leu Pro 405 410 415			1304
gta act cca gag gag ttg agg atg agg ttg ctc tat tat gaa aac cga Val Thr Pro Glu Glu Leu Arg Met Arg Leu Leu Tyr Glu Asn Arg 420 425 430			1352
gtt gca ctt gct cga ctt ctc ttt oca gtg gaa act gaa act gta cag Val Ala Leu Ala Arg Leu Leu Phe Pro Val Glu Thr Glu Thr Val Gln 435 440 445			1400
ggg att gcc aaa ttg gag gaa aca tgc gag ttt aca gct tct agt ctc Gly Ile Ala Lys Leu Glu Glu Thr Cys Glu Phe Thr Ala Ser Ser Leu 450 455 460 465			1448
gag cct gat cat cac att ggt gaa aag cgg aca tca cta gac cta aat Glu Pro Asp His His Ile Gly Glu Lys Arg Thr Ser Leu Asp Leu Asn 470 475 480			1496
atg gcg ccg ttc caa atc cat gag aag cat ttg agt aga cta aga gca Met Ala Pro Phe Gln Ile His Glu Lys His Leu Ser Arg Leu Arg Ala 485 490 495			1544
ctt tgt aaa acc gtg gaa ctg ggg aaa cgc tac ttc aaa cga tgt tgc Leu Cys Lys Thr Val Glu Leu Gly Lys Arg Tyr Phe Lys Arg Cys Ser 500 505 510			1592
ctt gat cac ttt atg gat act gag gac ttg aat cat ctt gct agc gta Leu Asp His Phe Met Asp Thr Glu Asp Leu Asn His Leu Ala Ser Val 515 520 525			1640
gaa gaa gat act cct gag aaa cgg cta caa aag aag caa agg tac atg Glu Glu Asp Thr Pro Glu Lys Arg Leu Gln Lys Lys Gln Arg Tyr Met 530 535 540 545			1688
gaa cta caa gag act ctg atg aag acc ttt agt gag gac aag gag gaa Glu Leu Gln Glu Thr Leu Met Lys Thr Phe Ser Glu Asp Lys Glu Glu 550 555 560			1736

tgt gga aag tct tcc aca cgg aaa cca acc tct gcg gtg agg tct aat 1784
Cys Gly Lys Ser Ser Thr Pro Lys Pro Thr Ser Ala Val Arg Ser Asn
565 570 575

aga aaa ctc tct cac cgg cgc cta aaa gtg gac aaa cgg gat ttt ttg 1832
Arg Lys Leu Ser His Arg Arg Leu Lys Val Asp Lys Arg Asp Phe Leu
580 585 590

aaa cga cct tac ggg aac ggg gat taa ggaatgggaa atcatattcc 1879
Lys Arg Pro Tyr Gly Asn Gly Asp
595 600

atttcaactcc cacaactaaa aatgatgtat gtccatatac atgatgtttc gtgagtttca 1939

aataaaattga aacgtacata tatcagtttt tcactctacgt gactgcgttg tatagttttc 1999

gttcttcaact tagcatcatg tgtattctag ctccaagtgc gtttcaaaca aatatagtta 2059

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35 40 45

Leu Lys Leu Leu Ser Asn Cys Leu Glu Ser Val Phe Asp Ser Pro Glu
50 55 60

Thr Phe Tyr Ser Asp Ala Lys Leu Val Leu Ala Gly Gly Arg Glu Val
65 70 75 80

Ser Phe His Arg Cys Ile Leu Ser Ala Arg Ile Pro Val Phe Lys Ser
85 90 95

Ala Leu Ala Thr Val Lys Glu Gln Lys Ser Ser Thr Thr Val Lys Leu
100 105 110

Gln Leu Lys Glu Ile Ala Arg Asp Tyr Glu Val Gly Phe Asp Ser Val
115 120 125

Val Ala Val Leu Ala Tyr Val Tyr Ser Gly Arg Val Arg Ser Pro Pro

130

135

140

Lys Gly Ala Ser Ala Cys Val Asp Asp Asp Cys Cys His Val Ala Cys
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Arg Ser Lys Val Asp Phe Met Val Glu Val Leu Tyr Leu Ser Phe Val
 165 170 175

Phe Gln Ile Gln Glu Leu Val Thr Leu Tyr Glu Arg Gln Phe Leu Glu
 180 185 190

Ile Val Asp Lys Val Val Val Glu Asp Ile Leu Val Ile Phe Lys Leu
 195 200 205

Asp Thr Leu Cys Gly Thr Thr Tyr Lys Lys Leu Leu Asp Arg Cys Ile
 210 215 220

Glu Ile Ile Val Lys Ser Asp Ile Glu Leu Val Ser Leu Glu Lys Ser
 225 230 235 240

Leu Pro Gln His Ile Phe Lys Gln Ile Ile Asp Ile Arg Glu Ala Leu
 245 250 255

Cys Leu Glu Pro Pro Lys Leu Glu Arg His Val Lys Asn Ile Tyr Lys
 260 265 270

Ala Leu Asp Ser Asp Asp Val Glu Leu Val Lys Met Leu Leu Leu Glu
 275 280 285

Gly His Thr Asn Leu Asp Glu Ala Tyr Ala Leu His Phe Ala Ile Ala
 290 295 300

His Cys Ala Val Lys Thr Ala Tyr Asp Leu Leu Glu Leu Glu Leu Ala
 305 310 315 320

Asp Val Asn Leu Arg Asn Pro Arg Gly Tyr Thr Val Leu His Val Ala
 325 330 335

Ala Met Arg Lys Glu Pro Lys Leu Ile Ile Ser Leu Leu Met Lys Gly
 340 345 350

Ala Asn Ile Leu Asp Thr Thr Leu Asp Gly Arg Thr Ala Leu Val Ile
 355 360 365

Val Lys Arg Leu Thr Lys Ala Asp Asp Tyr Lys Thr Ser Thr Glu Asp
370 375 380

Gly Thr Pro Ser Leu Lys Gly Gly Leu Cys Ile Glu Val Leu Glu His
385 390 395 400

Glu Gln Lys Leu Glu Tyr Leu Ser Pro Ile Glu Ala Ser Leu Ser Leu
405 410 415

Pro Val Thr Pro Glu Glu Leu Arg Met Arg Leu Leu Tyr Tyr Glu Asn
420 425 430

Arg Val Ala Leu Ala Arg Leu Leu Phe Pro Val Glu Thr Glu Thr Val
435 440 445

Gln Gly Ile Ala Lys Leu Glu Glu Thr Cys Glu Phe Thr Ala Ser Ser
450 455 460

Leu Glu Pro Asp His His Ile Gly Glu Lys Arg Thr Ser Leu Asp Leu
465 470 475 480

Asn Met Ala Pro Phe Gln Ile His Glu Lys His Leu Ser Arg Leu Arg
485 490 495

Ala Leu Cys Lys Thr Val Glu Leu Gly Lys Arg Tyr Phe Lys Arg Cys
500 505 510

Ser Leu Asp His Phe Met Asp Thr Glu Asp Leu Asn His Leu Ala Ser
515 520 525

Val Glu Glu Asp Thr Pro Glu Lys Arg Leu Gln Lys Lys Gln Arg Tyr
530 535 540

Met Glu Leu Gln Glu Thr Leu Met Lys Thr Phe Ser Glu Asp Lys Glu
545 550 555 560

Glu Cys Gly Lys Ser Ser Thr Pro Lys Pro Thr Ser Ala Val Arg Ser
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His Trp Arg Pro Ala Glu Asp Glu Lys Leu Arg Glu Leu Val Glu Gln
10 15 20

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Phe Gly Pro His Asn Trp Asn Ala Ile Ala Gln Lys Ser Ser Gly Arg
25 30 35

tct ggt aag agt tgt aga ttg aga tgg ttt aat caa ttg gat cct agg 200
Ser Gly Lys Ser Cys Arg Leu Arg Trp Phe Asn Gln Leu Asp Pro Arg
40 45 50

att aac cga aac cct ttc acg gag gaa gaa gaa gaa agg ctt tta gcg 248
Ile Asn Arg Asn Pro Phe Thr Glu Glu Glu Glu Glu Arg Leu Leu Ala
55 60 65 70

cct cat cgg atc cat ggg aac aga tgg tct gtg atc gct aga ttt ttt 296
Pro His Arg Ile His Gly Asn Arg Trp Ser Val Ile Ala Arg Phe Phe
75 80 85

ccc ggt cga act gat aac gct gtt aaa aac cat tgg cac gtc atc atg 344
Pro Gly Arg Thr Asp Asn Ala Val Lys Asn His Trp His Val Ile Met
90 95 100

gct cgt cgt ggc cga gaa cgg tcc aag ctc cgt cca cga ggc ctt ggc 392
Ala Arg Arg Gly Arg Glu Arg Ser Lys Leu Arg Pro Arg Gly Leu Gly
105 110 115

cat gat ggc acg gtg gct gcg act ggg atg att ggt aat tat aaa gac 440
His Asp Gly Thr Val Ala Ala Thr Gly Met Ile Gly Asn Tyr Lys Asp
120 125 130

tgc gat aag gag aga aga ttg gca acc aca acc gct atc aat ttt cct 488
Cys Asp Lys Glu Arg Arg Leu Ala Thr Thr Thr Ala Ile Asn Phe Pro
135 140 145 150

tat caa ttc tct cat att aat cat ttt caa gtc ctc aaa gag tcc ttg 536
Tyr Gln Phe Ser His Ile Asn His Phe Gln Val Leu Lys Glu Ser Leu
155 160 165

acc gga aag atc ggg ttc aga aat agt act act cca ata caa gaa gga 584
Thr Gly Lys Ile Gly Phe Arg Asn Ser Thr Thr Pro Ile Gln Glu Gly
170 175 180

gca ata gac caa act aaa cga ccg atg gag ttc tac aat ttt ctc caa 632
Ala Ile Asp Gln Thr Lys Arg Pro Met Glu Phe Tyr Asn Phe Leu Gln
185 190 195

gta aac acg gat tcg aag ata cac gaa ttg ata gat aat tca aga aaa 680
Val Asn Thr Asp Ser Lys Ile His Glu Leu Ile Asp Asn Ser Arg Lys
200 205 210

gac gaa gaa gaa gat gtc gat caa aac aac cga att cgt aac gag aat 728
Asp Glu Glu Glu Asp Val Asp Gln Asn Asn Arg Ile Arg Asn Glu Asn
215 220 225 230

tgt gtt cca ttt ttc gac ttt ttg tct gtt gga aac tct gcc tct cag 776
Cys Val Pro Phe Phe Asp Phe Leu Ser Val Gly Asn Ser Ala Ser Gln
235 240 245

ggt tta tgt taa tttgtccgta ccacatgtac tataagggtgg accatatggt 828
Gly Leu Cys

aactaaagat aatgtagaaa gtactaatca attagagctc ctgtttgagc caaatgtgaa 888

aattagttaa gacatcccaa acattttctt gtataacaca tataagggttg tactttttatc 948

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Gln Lys Leu Ser Gly Arg Ser Gly Lys Ser Cys Arg Leu Arg Trp Phe
35 40 45

Asn Gln Leu Asp Pro Arg Ile Asn Arg Asn Pro Phe Thr Glu Glu Glu
50 55 60

Glu Glu Arg Leu Leu Ala Pro His Arg Ile His Gly Asn Arg Trp Ser
65 70 75 80

Val Ile Ala Arg Phe Phe Pro Gly Arg Thr Asp Asn Ala Val Lys Asn
85 90 95

His Trp His Val Ile Met Ala Arg Arg Gly Arg Glu Arg Ser Lys Leu
100 105 110

Arg Pro Arg Gly Leu Gly His Asp Gly Thr Val Ala Ala Thr Gly Met
115 120 125

Ile Gly Asn Tyr Lys Asp Cys Asp Lys Glu Arg Arg Leu Ala Thr Thr
130 135 140

Thr Ala Ile Asn Phe Pro Tyr Gln Phe Ser His Ile Asn His Phe Gln
145 150 155 160

Val Leu Lys Glu Ser Leu Thr Gly Lys Ile Gly Phe Arg Asn Ser Thr
165 170 175

Thr Pro Ile Gln Glu Gly Ala Ile Asp Gln Thr Lys Arg Pro Met Glu
180 185 190

Phe Tyr Asn Phe Leu Gln Val Asn Thr Asp Ser Lys Ile His Glu Leu
195 200 205

Ile Asp Asn Ser Arg Lys Asp Glu Glu Glu Asp Val Asp Gln Asn Asn
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Arg Ile Arg Asn Glu Asn Cys Val Pro Phe Phe Asp Phe Leu Ser Val
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Gly Asn Ser Ala Ser Gln Gly Leu Cys
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Met Glu Gly Ser Ser Lys Gly Leu Arg Lys Gly Ala Trp Thr Thr Glu
1 5 10 15

gaa gat agt ctc ttg aga cag tgc att aat aag tat gga gaa ggc aaa 154
Glu Asp Ser Leu Leu Arg Gln Cys Ile Asn Lys Tyr Gly Glu Gly Lys
20 25 30

tgg cac caa gtt cct gta aga gct ggg cta aac cgg tgc agg aaa agt 202
Trp His Gln Val Pro Val Arg Ala Gly Leu Asn Arg Cys Arg Lys Ser
35 40 45

tgt aga tta aga tgg ttg aac tat ttg aag cca agt atc aag aga gga 250

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Lys	Leu	Ser	Ser	Asp	Glu	Val	Asp	Leu	Leu	Leu	Arg	Leu	His	Arg	Leu		
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cta	ggg	aat	agg	tgg	tct	tta	att	gct	gga	aga	tta	cct	ggt	cgg	acc	346	
Leu	Gly	Asn	Arg	Trp	Ser	Leu	Ile	Ala	Gly	Arg	Leu	Pro	Gly	Arg	Thr		
				85				90						95			
gca	aat	gac	gtc	aag	aat	tac	tgg	aac	act	cat	ctg	agt	aag	aaa	cat	394	
Ala	Asn	Asp	Val	Lys	Asn	Tyr	Trp	Asn	Thr	His	Leu	Ser	Lys	Lys	His		
			100					105					110				
gaa	ccg	tgt	tgt	aag	ata	aag	atg	aaa	aag	aga	gac	att	acg	ccc	att	442	
Glu	Pro	Cys	Cys	Lys	Ile	Lys	Met	Lys	Lys	Arg	Asp	Ile	Thr	Pro	Ile		
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cct	aca	aca	ccg	gca	cta	aaa	aac	aat	gtt	tat	aag	cct	cga	cct	cga	490	
Pro	Thr	Thr	Pro	Ala	Leu	Lys	Asn	Asn	Val	Tyr	Lys	Pro	Arg	Pro	Arg		
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tcc	ttc	aca	gtt	aac	aac	gac	tgc	aac	cat	ctc	aat	gcc	cca	cca	aaa	538	
Ser	Phe	Thr	Val	Asn	Asn	Asp	Cys	Asn	His	Leu	Asn	Ala	Pro	Pro	Lys		
145				150						155					160		
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Val	Asp	Val	Asn	Pro	Pro	Cys	Leu	Gly	Leu	Asn	Ile	Asn	Asn	Val	Cys		
				165				170						175			
gac	aat	agt	atc	ata	tac	aac	aaa	gat	aag	aag	aaa	gac	caa	cta	gtg	634	
Asp	Asn	Ser	Ile	Ile	Tyr	Asn	Lys	Asp	Lys	Lys	Lys	Asp	Gln	Leu	Val		
			180					185					190				
aat	aat	ttg	att	gat	gga	gat	aat	atg	tgg	tta	gag	aaa	ttc	cta	agg	682	
Asn	Asn	Leu	Ile	Asp	Gly	Asp	Asn	Met	Trp	Leu	Glu	Lys	Phe	Leu	Arg		
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aaa	gcc	aag	agg	tag	atatatttgg	tcctgaagcg	acgacaacag	aaaaggggga								737	
Lys	Ala	Lys	Arg														
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20 25 30

Trp His Gln Val Pro Val Arg Ala Gly Leu Asn Arg Cys Arg Lys Ser
35 40 45

Cys Arg Leu Arg Trp Leu Asn Tyr Leu Lys Pro Ser Ile Lys Arg Gly
50 55 60

Lys Leu Ser Ser Asp Glu Val Asp Leu Leu Leu Arg Leu His Arg Leu
65 70 75 80

Leu Gly Asn Arg Trp Ser Leu Ile Ala Gly Arg Leu Pro Gly Arg Thr
85 90 95

Ala Asn Asp Val Lys Asn Tyr Trp Asn Thr His Leu Ser Lys Lys His
100 105 110

Glu Pro Cys Cys Lys Ile Lys Met Lys Lys Arg Asp Ile Thr Pro Ile
115 120 125

Pro Thr Thr Pro Ala Leu Lys Asn Asn Val Tyr Lys Pro Arg Pro Arg
130 135 140

Ser Phe Thr Val Asn Asn Asp Cys Asn His Leu Asn Ala Pro Pro Lys
145 150 155 160

Val Asp Val Asn Pro Pro Cys Leu Gly Leu Asn Ile Asn Asn Val Cys
165 170 175

Asp Asn Ser Ile Ile Tyr Asn Lys Asp Lys Lys Lys Asp Gln Leu Val
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Glu Gln Ala Leu Leu Ser Met Glu Ala Leu Pro Leu Gly Phe Arg Phe	
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aga cca acg gat gaa gaa ctc atc aat cat tac cta agg tta aaa atc	145
Arg Pro Thr Asp Glu Glu Leu Ile Asn His Tyr Leu Arg Leu Lys Ile	
35 40 45	
aac gcc cgt gat tta gag gtt aga gtc atc cct gag atc gat gtt tgc	193
Asn Gly Arg Asp Leu Glu Val Arg Val Ile Pro Glu Ile Asp Val Cys	
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aag tgg gaa cca tgg gac tta cct ggg cta tgc gtg ata aag aca gat	241
Lys Trp Glu Pro Trp Asp Leu Pro Gly Leu Ser Val Ile Lys Thr Asp	
65 70 75	
gat caa gaa tgg ttc ttt ttt tgt cct cgt gat cga aag tat ccg agt	289
Asp Gln Glu Trp Phe Phe Phe Cys Pro Arg Asp Arg Lys Tyr Pro Ser	
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Gly His Arg Ser Asn Arg Ala Thr Asp Ile Gly Tyr Trp Lys Ala Thr	
95 100 105 110	
ggg aaa gat cga act att aag tct aag aag atg att att ggt atg aag	385
Gly Lys Asp Arg Thr Ile Lys Ser Lys Lys Met Ile Ile Gly Met Lys	
115 120 125	
aag act ctt gtt ttc tat cgt gga aga gct cct aga gga gag cgt act	433
Lys Thr Leu Val Phe Tyr Arg Gly Arg Ala Pro Arg Gly Glu Arg Thr	
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Asn Trp Ile Met His Glu Tyr Arg Ala Thr Asp Lys Glu Leu Asp Gly	
145 150 155	
act gga cct ggt cag aat ccg tat gtt ttg tgt cgc ttg ttc cac aag	529
Thr Gly Pro Gly Gln Asn Pro Tyr Val Leu Cys Arg Leu Phe His Lys	
160 165 170	
cct agt gat agt tgt gat cct gca cac tgt gag gaa ata gag aaa gtt	577
Pro Ser Asp Ser Cys Asp Pro Ala His Cys Glu Glu Ile Glu Lys Val	
175 180 185 190	
aat ttt act cca acc acc acc act aga tgc tct cct gat gac aca tct	625
Asn Phe Thr Pro Thr Thr Thr Thr Arg Cys Ser Pro Asp Asp Thr Ser	
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Ser Glu Met Val Gln Glu Thr Ala Thr Ser Gly Val His Ala Leu Asp	
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225 230 235	
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Val Lys Pro Asp Val Ser Val Ile Asn Asn Thr Ser Val Asn His Ala	
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Glu Thr Ser Arg Ala Lys Asp Arg Asn Leu Gly Lys Thr Leu Val Glu	
255 260 265 270	
gaa aat cca ctt cta agg gac gtt cca act ctt cat gga ccc atc ttg	865
Glu Asn Pro Leu Leu Arg Asp Val Pro Thr Leu His Gly Pro Ile Leu	
275 280 285	
agt gag aaa tca tat tat cca gga cag tca agc atc ggt ttt gct aca	913
Ser Glu Lys Ser Tyr Tyr Pro Gly Gln Ser Ser Ile Gly Phe Ala Thr	
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Ser His Met Asp Ser Met Tyr Ser Ser Asp Phe Gly Asn Cys Asp Tyr	
305 310 315	
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Gly Leu His Phe Gln Asp Gly Ala Ser Glu Gln Asp Ala Ser Leu Thr	
320 325 330	
gat gtc ttg gat gaa gta ttc cat aac cat aat gaa tcc tct aat gac	1057
Asp Val Leu Asp Glu Val Phe His Asn His Asn Glu Ser Ser Asn Asp	
335 340 345 350	
agg aaa gac ttt gta ctt cag aat atg atg cat tgg cct ggt aat aca	1105
Arg Lys Asp Phe Val Leu Pro Asn Met Met His Trp Pro Gly Asn Thr	
355 360 365	
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Arg Leu Leu Ser Thr Glu Tyr Pro Phe Leu Lys Asp Ser Val Ala Phe	
370 375 380	
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Val Asp Gly Ser Ala Glu Val Ser Gly Ser Gln Gln Phe Val Pro Asp	
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Ile Leu Ala Ser Arg Trp Val Ser Glu Gln Asn Val Asp Ser Lys Glu	
400 405 410	
gca gta gag att cta tct tca acc ggc tcc tct cgg acc ttg acg cca	1297
Ala Val Glu Ile Leu Ser Ser Thr Gly Ser Ser Arg Thr Leu Thr Pro	
415 420 425 430	
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Leu His Asn Asn Val Phe Gly Gln Tyr Ala Ser Ser Ser Tyr Ala Ala	
435 440 445	
atc gat cca ttt aac tat aat gtc aat cag cct gaa cag tca tcc ttt	1393
Ile Asp Pro Phe Asn Tyr Asn Val Asn Gln Pro Glu Gln Ser Ser Phe	

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900
800
700
600
500
400
300
200
100
0

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gac caa ggc act gct cct aga aga att cgg ctg cag atc gaa cag cca Asp Gln Gly Thr Ala Pro Arg Arg Ile Arg Leu Gln Ile Glu Gln Pro 495 500 505 510			1537
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ccg gct aat tta agt gct cag ggg act gct cag agg aga atc cgc ctg Pro Ala Asn Leu Ser Ala Gln Gly Thr Ala Gln Arg Arg Ile Arg Leu 545 550 555			1681
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aac tca aat ggc aga gaa gga gaa gca agc cat agg aag tgt gaa atg Asn Ser Asn Gly Arg Glu Gly Glu Ala Ser His Arg Lys Cys Glu Met 575 580 585 590			1777
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35 40 45

Arg Asp Leu Glu Val Arg Val Ile Pro Glu Ile Asp Val Cys Lys Trp
50 55 60

Glu Pro Trp Asp Leu Pro Gly Leu Ser Val Ile Lys Thr Asp Asp Gln
65 70 75 80

Glu Trp Phe Phe Phe Cys Pro Arg Asp Arg Lys Tyr Pro Ser Gly His
85 90 95

Arg Ser Asn Arg Ala Thr Asp Ile Gly Tyr Trp Lys Ala Thr Gly Lys
100 105 110

Asp Arg Thr Ile Lys Ser Lys Lys Met Ile Ile Gly Met Lys Lys Thr
115 120 125

Leu Val Phe Tyr Arg Gly Arg Ala Pro Arg Gly Glu Arg Thr Asn Trp
130 135 140

Ile Met His Glu Tyr Arg Ala Thr Asp Lys Glu Leu Asp Gly Thr Gly
145 150 155 160

Pro Gly Gln Asn Pro Tyr Val Leu Cys Arg Leu Phe His Lys Pro Ser
165 170 175

Asp Ser Cys Asp Pro Ala His Cys Glu Glu Ile Glu Lys Val Asn Phe
180 185 190

Thr Pro Thr Thr Thr Thr Arg Cys Ser Pro Asp Asp Thr Ser Ser Glu
195 200 205

Met Val Gln Glu Thr Ala Thr Ser Gly Val His Ala Leu Asp Arg Ser
210 215 220

Asp Asp Thr Glu Arg Cys Leu Ser Asp Lys Gly Asn Asn Asp Val Lys
225 230 235 240

Ser His Val Asp Arg Asn Ile Ser Pro Ser Asn Ile Phe Glu Phe Lys
465 470 475 480

Ala Arg Ser Arg Glu Asn Gln Arg Asp Leu Asp Ser Val Val Asp Gln
485 490 495

Gly Thr Ala Pro Arg Arg Ile Arg Leu Gln Ile Glu Gln Pro Leu Thr
500 505 510

Pro Val Thr Asn Lys Lys Glu Arg Asp Ala Asp Asn Tyr Glu Glu Glu
515 520 525

Asp Glu Val Gln Ser Ala Met Ser Lys Val Val Glu Glu Glu Pro Ala
530 535 540

Asn Leu Ser Ala Gln Gly Thr Ala Gln Arg Arg Ile Arg Leu Gln Thr
545 550 555 560

Arg Leu Arg Lys Pro Leu Ile Thr Leu Asn Asn Thr Lys Arg Asn Ser
565 570 575

Asn Gly Arg Glu Gly Glu Ala Ser His Arg Lys Cys Glu Met Gln Glu
580 585 590

Lys Glu Asp Ile Ser Ser Ser Ser Ser Trp Gln Lys Gln Lys Lys Ser
595 600 605

Leu Val Gln Phe Ser Ser Val Val Ile Ile Val Ala Val Ile Val Val
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aac gac aac gaa aac aac aac aac aac aac aat ggt gga act gac 96

Asn Asp Asn Glu Asn Asn Asn Asn Asn Asn Asn Asn Gly Gly Thr Asp	
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aac act aat gct gga aat gat tct gga gat caa gat ttc gac agt ggg	144
Asn Thr Asn Ala Gly Asn Asp Ser Gly Asp Gln Asp Phe Asp Ser Gly	
35 40 45	
aat acc tca agt ggc aat cat gga gaa ggg ttg gga aac aat caa gct	192
Asn Thr Ser Ser Gly Asn His Gly Glu Gly Leu Gly Asn Asn Gln Ala	
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cct cgt cat aag aag aaa aaa tac aat cgt cac acc caa ctt cag att	240
Pro Arg His Lys Lys Lys Tyr Asn Arg His Thr Gln Leu Gln Ile	
65 70 75 80	
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Ser Glu Met Glu Ala Phe Phe Arg Glu Cys Pro His Pro Asp Asp Lys	
85 90 95	
caa agg tac gac ctt agc gct caa ttg gga ttg gac cct gtt cag atc	336
Gln Arg Tyr Asp Leu Ser Ala Gln Leu Gly Leu Asp Pro Val Gln Ile	
100 105 110	
aaa ttc tgg ttc cag aac aaa cgc act caa aac aag aat caa caa gaa	384
Lys Phe Trp Phe Gln Asn Lys Arg Thr Gln Asn Lys Asn Gln Gln Glu	
115 120 125	
cgc ttt gag aac tca gaa ctt cgg aat ctg aac aac cac ctt agg tct	432
Arg Phe Glu Asn Ser Glu Leu Arg Asn Leu Asn His Leu Arg Ser	
130 135 140	
gaa aat cag cgg tta cga gaa gct att cat caa gcc tta tgc cct aag	480
Glu Asn Gln Arg Leu Arg Glu Ala Ile His Gln Ala Leu Cys Pro Lys	
145 150 155 160	
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Cys Gly Gly Gln Thr Ala Ile Gly Glu Met Thr Phe Glu Glu His His	
165 170 175	
ctt cgc atc ctc aac gct cgt ttg act gaa gag atc aag caa ctt tcc	576
Leu Arg Ile Leu Asn Ala Arg Leu Thr Glu Glu Ile Lys Gln Leu Ser	
180 185 190	
gtg aca gcg gaa aag ata tca agg ctt acg ggg ata cca gta agg agc	624
Val Thr Ala Glu Lys Ile Ser Arg Leu Thr Gly Ile Pro Val Arg Ser	
195 200 205	
cat ccc cgt gtg tct cct cct aat cct cct cca aat ttc gag ttc ggg	672
His Pro Arg Val Ser Pro Pro Asn Pro Pro Asn Phe Glu Phe Gly	
210 215 220	
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Met Gly Ser Lys Gly Asn Val Gly Asn His Ser Arg Glu Thr Thr Gly	
225 230 235 240	
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Pro Ala Asp Ala Asn Thr Lys Pro Ile Ile Met Glu Leu Ala Phe Gly	

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	275	280	285	
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	Glu Lys Thr Phe Arg Thr	Gly Leu Gly Pro Arg Leu Gly Gly Phe Arg		
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	acc gag gca tcc agg gaa act gca ctc gtg gca atg tgt cct act ggc	960		
	Thr Glu Ala Ser Arg Glu Thr Ala Leu Val Ala Met Cys Pro Thr Gly			
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	att gtt gaa atg ctc atg caa gag aat ctg tgg tca aca atg ttt gcc	1008		
	Ile Val Glu Met Leu Met Gln Glu Asn	Leu Trp Ser Thr Met Phe Ala		
	325	330	335	
	gga att gtt ggt aga gcc agg act cat gaa cag ata atg gct gat gct	1056		
	Gly Ile Val Gly Arg Ala Arg Thr His	Glu Gln Ile Met Ala Asp Ala		
	340	345	350	
	gct gga aac ttc aat gga aat ctc caa ata atg agt gct gag tac caa	1104		
	Ala Gly Asn Phe Asn Gly Asn	Leu Gln Ile Met Ser Ala Glu Tyr Gln		
	355	360	365	
	gtg ctt tcc ccg cta gtc aca acc cgc gaa agc tac ttc gtc cgc tac	1152		
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	Cys Lys Gln Gln Gly Glu Gly Leu Trp Ala Val Val Asp Ile Ser Ile			
	385	390	395	400
	gac cat ctc ctc cca aac atc aac cta aaa tgt cgc cgc cga ccc tct	1248		
	Asp His Leu Leu Pro Asn Ile Asn Leu Lys Cys Arg Arg Arg Pro Ser			
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	gga tgt ctg att caa gaa atg cat agt ggt tac tcc aag gtt aca tgg	1296		
	Gly Cys Leu Ile Gln Glu Met His Ser Gly Tyr Ser Lys Val Thr Trp			
	420	425	430	
	gtg gaa cat gtg gaa gta gat gat gca gga agt tac agc atc ttt gag	1344		
	Val Glu His Val Glu Val Asp Asp Ala Gly Ser Tyr Ser Ile Phe Glu			
	435	440	445	
	aaa tta atc tgt act ggt caa gct ttt gct gct aac cgc tgg gtt ggt	1392		
	Lys Leu Ile Cys Thr Gly Gln Ala Phe Ala Ala Asn Arg Trp Val Gly			
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	Thr Leu Val Arg Gln Cys Glu Arg Ile Ser Ser Ile Leu Ser Thr Asp			
	465	470	475	480

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Phe Gln Ser Val Asp Ser Gly Asp His Ile Thr Leu Thr Asn His Gly	
485 490 495	
aag atg agc atg ctg aag ata gct gag cgg att gcg aga acc ttc ttt	1536
Lys Met Ser Met Leu Lys Ile Ala Glu Arg Ile Ala Arg Thr Phe Phe	
500 505 510	
gct gga atg acc aat gcg acg ggg tct aca ata ttt tct ggt gtt gaa	1584
Ala Gly Met Thr Asn Ala Thr Gly Ser Thr Ile Phe Ser Gly Val Glu	
515 520 525	
gga gaa gat atc aga gtg atg aca atg aag agc gtg aat gat cca gga	1632
Gly Glu Asp Ile Arg Val Met Thr Met Lys Ser Val Asn Asp Pro Gly	
530 535 540	
aag cct ccc ggt gtc att att tgt gca gcc act tcc ttt tgg ctt cct	1680
Lys Pro Pro Gly Val Ile Ile Cys Ala Ala Thr Ser Phe Trp Leu Pro	
545 550 555 560	
gct cct cct aac act gtc ttt gac ttc ctc aga gag gct act cac cga	1728
Ala Pro Pro Asn Thr Val Phe Asp Phe Leu Arg Glu Ala Thr His Arg	
565 570 575	
cac aat tgg gat gtt ctc tgc aac gga gag atg atg cac aag ata gca	1776
His Asn Trp Asp Val Leu Cys Asn Gly Glu Met Met His Lys Ile Ala	
580 585 590	
gag att acg aat ggg ata gac aaa agg aac tgt gca agt tta ctc cgg	1824
Glu Ile Thr Asn Gly Ile Asp Lys Arg Asn Cys Ala Ser Leu Leu Arg	
595 600 605	
cat gga cac act agc aag agc aag atg atg ata gtt caa gag act tct	1872
His Gly His Thr Ser Lys Ser Lys Met Met Ile Val Gln Glu Thr Ser	
610 615 620	
act gac cca aca gct tca ttt gtg ctt tat gcg cct gtt gat atg aca	1920
Thr Asp Pro Thr Ala Ser Phe Val Leu Tyr Ala Pro Val Asp Met Thr	
625 630 635 640	
tca atg gat att act ctc cat gga ggt ggt gat cct gac ttt gtg gtg	1968
Ser Met Asp Ile Thr Leu His Gly Gly Gly Asp Pro Asp Phe Val Val	
645 650 655	
atc ctg cct tct ggt ttt gct att ttt cca gat ggt acg ggt aag cct	2016
Ile Leu Pro Ser Gly Phe Ala Ile Phe Pro Asp Gly Thr Lys Pro	
660 665 670	
gga gga aaa gaa gga gga tca ctt ttg acc att tcc ttc caa atg ctg	2064
Gly Gly Lys Glu Gly Gly Ser Leu Leu Thr Ile Ser Phe Gln Met Leu	
675 680 685	
gtt gag tca ggt cct gag gct agg ctg agt gtt agc tct gtt gca act	2112
Val Glu Ser Gly Pro Glu Ala Arg Leu Ser Val Ser Ser Val Ala Thr	
690 695 700	

act gag aat ctg att cgt aca acc gtg cgg agg atc aaa gat ttg ttt 2160
 Thr Glu Asn Leu Ile Arg Thr Thr Val Arg Arg Ile Lys Asp Leu Phe
 705 710 715 720

cct tgt cag act gct tga 2178
 Pro Cys Gln Thr Ala
 725

<210> 442 <211> 725 <212> PRT <213> Arabidopsis thaliana <400> 442

Met Ser Gln Ser Asn Met Val Pro Val Ala Asn Asn Gly Asp Asn Asn
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Asn Asp Asn Glu Asn Asn Asn Asn Asn Asn Asn Gly Gly Thr Asp
 20 25 30

Asn Thr Asn Ala Gly Asn Asp Ser Gly Asp Gln Asp Phe Asp Ser Gly
 35 40 45

Asn Thr Ser Ser Gly Asn His Gly Glu Gly Leu Gly Asn Asn Gln Ala
 50 55 60

Pro Arg His Lys Lys Lys Lys Tyr Asn Arg His Thr Gln Leu Gln Ile
 65 70 75 80

Ser Glu Met Glu Ala Phe Phe Arg Glu Cys Pro His Pro Asp Asp Lys
 85 90 95

Gln Arg Tyr Asp Leu Ser Ala Gln Leu Gly Leu Asp Pro Val Gln Ile
 100 105 110

Lys Phe Trp Phe Gln Asn Lys Arg Thr Gln Asn Lys Asn Gln Gln Glu
 115 120 125

Arg Phe Glu Asn Ser Glu Leu Arg Asn Leu Asn Asn His Leu Arg Ser
 130 135 140

Glu Asn Gln Arg Leu Arg Glu Ala Ile His Gln Ala Leu Cys Pro Lys
 145 150 155 160

Cys Gly Gly Gln Thr Ala Ile Gly Glu Met Thr Phe Glu Glu His His
 165 170 175

Leu Arg Ile Leu Asn Ala Arg Leu Thr Glu Glu Ile Lys Gln Leu Ser
 180 185 190

Val Thr Ala Glu Lys Ile Ser Arg Leu Thr Gly Ile Pro Val Arg Ser
195 200 205

His Pro Arg Val Ser Pro Pro Asn Pro Pro Pro Asn Phe Glu Phe Gly
210 215 220

Met Gly Ser Lys Gly Asn Val Gly Asn His Ser Arg Glu Thr Thr Gly
225 230 235 240

Pro Ala Asp Ala Asn Thr Lys Pro Ile Ile Met Glu Leu Ala Phe Gly
245 250 255

Ala Met Glu Glu Leu Leu Val Met Ala Gln Val Ala Glu Pro Leu Trp
260 265 270

Met Gly Gly Phe Asn Gly Thr Ser Leu Ala Leu Asn Leu Asp Glu Tyr
275 280 285

Glu Lys Thr Phe Arg Thr Gly Leu Gly Pro Arg Leu Gly Gly Phe Arg
290 295 300

Thr Glu Ala Ser Arg Glu Thr Ala Leu Val Ala Met Cys Pro Thr Gly
305 310 315 320

Ile Val Glu Met Leu Met Gln Glu Asn Leu Trp Ser Thr Met Phe Ala
325 330 335

Gly Ile Val Gly Arg Ala Arg Thr His Glu Gln Ile Met Ala Asp Ala
340 345 350

Ala Gly Asn Phe Asn Gly Asn Leu Gln Ile Met Ser Ala Glu Tyr Gln
355 360 365

Val Leu Ser Pro Leu Val Thr Thr Arg Glu Ser Tyr Phe Val Arg Tyr
370 375 380

Cys Lys Gln Gln Gly Glu Gly Leu Trp Ala Val Val Asp Ile Ser Ile
385 390 395 400

Asp His Leu Leu Pro Asn Ile Asn Leu Lys Cys Arg Arg Arg Pro Ser
405 410 415

Gly Cys Leu Ile Gln Glu Met His Ser Gly Tyr Ser Lys Val Thr Trp
420 425 430

Val Glu His Val Glu Val Asp Asp Ala Gly Ser Tyr Ser Ile Phe Glu
435 440 445

Lys Leu Ile Cys Thr Gly Gln Ala Phe Ala Ala Asn Arg Trp Val Gly
450 455 460

Thr Leu Val Arg Gln Cys Glu Arg Ile Ser Ser Ile Leu Ser Thr Asp
465 470 475 480

Phe Gln Ser Val Asp Ser Gly Asp His Ile Thr Leu Thr Asn His Gly
485 490 495

Lys Met Ser Met Leu Lys Ile Ala Glu Arg Ile Ala Arg Thr Phe Phe
500 505 510

Ala Gly Met Thr Asn Ala Thr Gly Ser Thr Ile Phe Ser Gly Val Glu
515 520 525

Gly Glu Asp Ile Arg Val Met Thr Met Lys Ser Val Asn Asp Pro Gly
530 535 540

Lys Pro Pro Gly Val Ile Ile Cys Ala Ala Thr Ser Phe Trp Leu Pro
545 550 555 560

Ala Pro Pro Asn Thr Val Phe Asp Phe Leu Arg Glu Ala Thr His Arg
565 570 575

His Asn Trp Asp Val Leu Cys Asn Gly Glu Met Met His Lys Ile Ala
580 585 590

Glu Ile Thr Asn Gly Ile Asp Lys Arg Asn Cys Ala Ser Leu Leu Arg
595 600 605

His Gly His Thr Ser Lys Ser Lys Met Met Ile Val Gln Glu Thr Ser
610 615 620

Thr Asp Pro Thr Ala Ser Phe Val Leu Tyr Ala Pro Val Asp Met Thr
625 630 635 640

Ser Met Asp Ile Thr Leu His Gly Gly Asp Pro Asp Phe Val Val
645 650

Ile Leu Pro Ser Gly Phe Ala Ile Phe Pro Asp Gly Thr Gly Lys Pro
660 665 670

Gly Gly Lys Glu Gly Gly Ser Leu Leu Thr Ile Ser Phe Gln Met Leu
675 680 685

Val Glu Ser Gly Pro Glu Ala Arg Leu Ser Val Ser Ser Val Ala Thr
690 695 700

Thr Glu Asn Leu Ile Arg Thr Thr Val Arg Arg Ile Lys Asp Leu Phe
705 710 715 720

Pro Cys Gln Thr Ala
725

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<222> (1)..(1869) <223> G1553

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Met Ser Gln Thr Ser Leu Glu Pro Leu Ile Ile Ser Ile Ile Lys Leu
1 5 10 15

caa att ttg caa ctt tgg ttg aaa ttg ata gct gtt ggt tgg aat tta 96
Gln Ile Leu Gln Leu Trp Leu Lys Leu Ile Ala Val Gly Trp Asn Leu
20 25 30

ggg tct aat gat gat gaa ttg tac acg gag cta tgg aaa gct tgt gca 144
Gly Ser Asn Asp Asp Glu Leu Tyr Thr Glu Leu Trp Lys Ala Cys Ala
35 40 45

ggg cca ctt gtg gaa gtt cct cgt tat ggt gaa aga gtt ttc tac ttc 192
Gly Pro Leu Val Glu Val Pro Arg Tyr Gly Glu Arg Val Phe Tyr Phe
50 55 60

cct caa ggt cac atg gaa caa ttg gtt gct tgc act aat caa gga gtt 240
Pro Gln Gly His Met Glu Gln Leu Val Ala Ser Thr Asn Gln Gly Val
65 70 75 80

gtt gat caa gag ata cca gtg ttt aat ctt cct cca aag ata ctt tgt 288
Val Asp Gln Glu Ile Pro Val Phe Asn Leu Pro Pro Lys Ile Leu Cys
85 90 95

cgt gtt ctt agt gtt acg tta aaa gca gaa cat gag acc gat gag gtt 336
Arg Val Leu Ser Val Thr Leu Lys Ala Glu His Glu Thr Asp Glu Val
100 105 110

tac gct cag atc aca tta caa cca gaa gaa gat caa agt gaa cca aca 384

tgg aat gag ttc tgt aaa atg gca aag aag tta ttc ata tat ccg agt 1776
 Trp Asn Glu Phe Cys Lys Met Ala Lys Lys Leu Phe Ile Tyr Pro Ser
 580 585 590

gat gag gtc aag aaa atg agg tcg aag tcg ttg ttg ggt gat aaa ggt 1824
 Asp Glu Val Lys Lys Met Arg Ser Lys Ser Leu Leu Gly Asp Lys Gly
 595 600 605

acg atc gta aat ctt gaa tca gat cag agg aca gtt cac gtt taa 1869
 Thr Ile Val Asn Leu Glu Ser Asp Gln Arg Thr Val His Val
 610 615 620

<210> 444 <211> 622 <212> PRT <213> Arabidopsis thaliana <400> 444

Met Ser Gln Thr Ser Leu Glu Pro Leu Ile Ile Ser Ile Ile Lys Leu
 1 5 10 15

Gln Ile Leu Gln Leu Trp Leu Lys Leu Ile Ala Val Gly Trp Asn Leu
 20 25 30

Gly Ser Asn Asp Asp Glu Leu Tyr Thr Glu Leu Trp Lys Ala Cys Ala
 35 40 45

Gly Pro Leu Val Glu Val Pro Arg Tyr Gly Glu Arg Val Phe Tyr Phe
 50 55 60

Pro Gln Gly His Met Glu Gln Leu Val Ala Ser Thr Asn Gln Gly Val
 65 70 75 80

Val Asp Gln Glu Ile Pro Val Phe Asn Leu Pro Pro Lys Ile Leu Cys
 85 90 95

Arg Val Leu Ser Val Thr Leu Lys Ala Glu His Glu Thr Asp Glu Val
 100 105 110

Tyr Ala Gln Ile Thr Leu Gln Pro Glu Glu Asp Gln Ser Glu Pro Thr
 115 120 125

Ser Leu Asp Pro Pro Leu Val Glu Pro Ala Lys Pro Thr Val Asp Ser
 130 135 140

Phe Val Lys Ile Leu Thr Ala Ser Asp Thr Ser Thr His Gly Gly Phe
 145 150 155 160

Ser Val Leu Arg Lys His Ala Thr Glu Cys Leu Pro Ser Leu Asp Met

165

170

175

Thr Gln Pro Thr Pro Thr Gln Glu Leu Val Ala Arg Asp Leu His Gly
180 185 190

Tyr Glu Trp Arg Phe Lys His Ile Phe Arg Gly Gln Pro Arg Arg His
195 200 205

Leu Leu Thr Thr Gly Trp Ser Thr Phe Val Thr Ser Lys Arg Leu Val
210 215 220

Ala Gly Asp Ala Phe Val Phe Leu Arg Gly Glu Thr Gly Asp Leu Arg
225 230 235 240

Val Gly Val Arg Arg Leu Ala Lys Gln Gln Ser Thr Met Pro Ala Ser
245 250 255

Val Ile Ser Ser Gln Ser Met Arg Leu Gly Val Leu Ala Thr Ala Ser
260 265 270

His Ala Val Thr Thr Thr Thr Ile Phe Val Val Phe Tyr Lys Pro Arg
275 280 285

Ile Ser Gln Phe Ile Ile Ser Val Asn Lys Tyr Met Met Ala Met Lys
290 295 300

Asn Gly Phe Ser Leu Gly Met Arg Tyr Arg Met Arg Phe Glu Gly Glu
305 310 315 320

Glu Ser Pro Glu Arg Ile Phe Thr Gly Thr Ile Ile Gly Ser Gly Asp
325 330 335

Leu Ser Ser Gln Trp Pro Ala Ser Lys Trp Arg Ser Leu Gln Ile Gln
340 345 350

Trp Asp Glu Pro Ser Ser Ile Gln Arg Pro Asn Lys Val Ser Pro Trp
355 360 365

Glu Ile Glu Pro Phe Ser Pro Ser Ala Leu Thr Pro Thr Pro Thr Gln
370 375 380

Gln Gln Ser Lys Ser Lys Arg Ser Arg Pro Ile Ser Glu Ile Thr Gly
385 390 395 400

Ser Pro Val Ala Ser Ser Phe Leu Ser Ser Phe Ser Gln Ser His Glu
405 410 415

Ser Asn Pro Ser Val Lys Leu Leu Phe Gln Asp Pro Ala Thr Glu Arg
420 425 430

Asn Ser Asn Lys Ser Val Phe Ser Ser Gly Leu Gln Cys Lys Ile Thr
435 440 445

Glu Ala Pro Val Thr Ser Ser Cys Arg Leu Phe Gly Phe Asp Leu Thr
450 455 460

Ser Lys Pro Ala Ser Ala Thr Ile Pro His Asp Lys Gln Leu Ile Ser
465 470 475 480

Val Asp Ser Asn Ile Ser Asp Ser Thr Thr Lys Cys Gln Asp Pro Asn
485 490 495

Ser Ser Asn Ser Pro Lys Glu Gln Lys Gln Gln Thr Ser Thr Arg Ser
500 505 510

Arg Ile Lys Val Gln Met Gln Gly Thr Ala Val Gly Arg Ala Val Asp
515 520 525

Leu Thr Leu Leu Arg Ser Tyr Asp Glu Leu Ile Lys Glu Leu Glu Lys
530 535 540

Met Phe Glu Ile Glu Gly Glu Leu Ser Pro Lys Asp Lys Trp Ala Ile
545 550 555 560

Val Phe Thr Asp Asp Glu Gly Asp Arg Met Leu Val Gly Asp Asp Pro
565 570 575

Trp Asn Glu Phe Cys Lys Met Ala Lys Lys Leu Phe Ile Tyr Pro Ser
580 585 590

Asp Glu Val Lys Lys Met Arg Ser Lys Ser Leu Leu Gly Asp Lys Gly
595 600 605

Thr Ile Val Asn Leu Glu Ser Asp Gln Arg Thr Val His Val
610 615 620

<210> 445 <211> 2232 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(2232) <223> G1588

<400> 445
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Met Tyr His Pro Asn Met Phe Glu Ser His His Met Phe Asp Met Thr
1 5 10 15
cca aag agt acc tct gat aac gac ttg gga atc acc ggt agc cga gaa 96
Pro Lys Ser Thr Ser Asp Asn Asp Leu Gly Ile Thr Gly Ser Arg Glu
20 25 30
gat gac ttt gag acc aag tca ggt acc gaa gtc act act gag aat cct 144
Asp Asp Phe Glu Thr Lys Ser Gly Thr Glu Val Thr Glu Asn Pro
35 40 45
tct ggt gaa gag ctt caa gat cct agc caa cgt ccc aac aaa aag aag 192
Ser Gly Glu Glu Leu Gln Asp Pro Ser Gln Arg Pro Asn Lys Lys Lys
50 55 60
cgt tac cat cgc cac acg caa cgc caa att caa gag ctc gaa tca ttc 240
Arg Tyr His Arg His Thr Gln Arg Gln Ile Gln Glu Leu Glu Ser Phe
65 70 75 80
ttt aag gaa tgt cct cat cca gat gat aag caa cga aaa gag ttg agc 288
Phe Lys Glu Cys Pro His Pro Asp Asp Lys Gln Arg Lys Glu Leu Ser
85 90 95
cgt gat ctc aat tta gag cct ctt caa gtt aag ttt tgg ttc caa aac 336
Arg Asp Leu Asn Leu Glu Pro Leu Gln Val Lys Phe Trp Phe Gln Asn
100 105 110
aaa cgc aca cag atg aag gca caa agt gag agg cat gag aac cag att 384
Lys Arg Thr Gln Met Lys Ala Gln Ser Glu Arg His Glu Asn Gln Ile
115 120 125
cta aag tca gac aat gac aag ctc aga gca gag aac aat aga tac aaa 432
Leu Lys Ser Ser Asp Asn Asp Lys Leu Arg Ala Glu Asn Asn Arg Tyr Lys
130 135 140
gaa gct cta agc aat gct aca tgc cct aac tgt ggc ggt cca gct gct 480
Glu Ala Leu Ser Asn Ala Thr Cys Pro Asn Cys Gly Gly Pro Ala Ala
145 150 155 160
att gga gaa atg tct ttt gac gaa caa cat ctc agg atc gaa aat gct 528
Ile Gly Glu Met Ser Phe Asp Glu Gln His Leu Arg Ile Glu Asn Ala
165 170 175
cgg ctc cgc gaa gag att gat agg atc tct gct att gct cgc aaa tac 576
Arg Leu Arg Glu Glu Ile Asp Arg Ile Ser Ala Ile Ala Ala Lys Tyr
180 185 190
gtt ggg aag cgc tta gga tgc tct ttc gct cca cta gcg atc cac gcg 624
Val Gly Lys Pro Leu Gly Ser Ser Phe Ala Pro Leu Ala Ile His Ala
195 200 205

cct tct cgt tcg ctt gat ctt gaa gtt gga aac ttt ggg aac cag aca Pro Ser Arg Ser Leu Asp Leu Glu Val Gly Asn Phe Gly Asn Gln Thr 210 215 220	672
ggc ttt gta gga gaa atg tat gga aca ggg gac att ttg agg tca gtt Gly Phe Val Gly Glu Met Tyr Gly Thr Gly Asp Ile Leu Arg Ser Val 225 230 235 240	720
tcg att cct tct gag act gat aag cct ata atc gtg gag cta gcg gtt Ser Ile Pro Ser Glu Thr Asp Lys Pro Ile Ile Val Glu Leu Ala Val 245 250 255	768
gca gct atg gag gaa ctc gtg aga atg gct caa act gga gat cct tta Ala Ala Met Glu Glu Leu Val Arg Met Ala Gln Thr Gly Asp Pro Leu 260 265 270	816
tgg ctt tca acc gat aat tca gtc gag att ctc aac gaa gaa gag tat Trp Leu Ser Thr Asp Asn Ser Val Glu Ile Leu Asn Glu Glu Glu Tyr 275 280 285	864
ttc aga acg ttt ccg aga gga att gga cca aag cca tta gga tta aga Phe Arg Thr Phe Pro Arg Gly Ile Gly Pro Lys Pro Leu Gly Leu Arg 290 295 300	912
tca gag gcg tca aga caa tct gca gtt gtt ata atg aat cac atc aat Ser Glu Ala Ser Arg Gln Ser Ala Val Val Ile Met Asn His Ile Asn 305 310 315 320	960
ctc gtt gag att ctc atg gat gtg aat caa tgg tct tgt gtt ttc tct Leu Val Glu Ile Leu Met Asp Val Asn Gln Trp Ser Cys Val Phe Ser 325 330 335	1008
ggg att gtg tca aga gcc ttg aca ctt gaa gtt ctt tca act gga gtt Gly Ile Val Ser Arg Ala Leu Thr Leu Glu Val Leu Ser Thr Gly Val 340 345 350	1056
gct ggg aac tac aac ggt gct tta caa gtg atg aca gct gag ttt caa Ala Gly Asn Tyr Asn Gly Ala Leu Gln Val Met Thr Ala Glu Phe Gln 355 360 365	1104
gtt cca tca ccc cta gtc cca acg cgt gag aac tac ttt gtg aga tac Val Pro Ser Pro Leu Val Pro Thr Arg Glu Asn Tyr Phe Val Arg Tyr 370 375 380	1152
tgc aaa caa cac agt gac ggc tct tgg gct gtg gtt gat gtc tct ttg Cys Lys Gln His Ser Asp Gly Ser Trp Ala Val Val Asp Val Ser Leu 385 390 395 400	1200
gac agc ctt aga cca agt act cca atc tta aga act aga aga agg cct Asp Ser Leu Arg Pro Ser Thr Pro Ile Leu Arg Thr Arg Arg Arg Pro 405 410 415	1248
tca ggt tgt ctg att caa gaa ttg cct aat ggt tat tct aag gtt aca Ser Gly Cys Leu Ile Gln Glu Leu Pro Asn Gly Tyr Ser Lys Val Thr 420 425 430	1296
tgg ata gag cat atg gag gta gat gat aga tca gtt cac aac atg tat	1344

Trp Ile Glu His Met Glu Val Asp Asp Arg Ser Val His Asn Met Tyr	
435 440 445	
aaa ccg ttg gtt cag tcc ggt tta gct ttc ggt gcg aaa cgt tgg gtg	1392
Lys Pro Leu Val Gln Ser Gly Leu Ala Phe Gly Ala Lys Arg Trp Val	
450 455 460	
gct aca ctc gaa cga caa tgc gag cgg ctt gct agc tcc atg gcc agc	1440
Ala Thr Leu Glu Arg Gln Cys Glu Arg Leu Ala Ser Ser Met Ala Ser	
465 470 475 480	
aac att cct ggt gat ctt tcc gtg ata acg agt cct gaa gga agg aag	1488
Asn Ile Pro Gly Asp Leu Ser Val Ile Thr Ser Pro Glu Gly Arg Lys	
485 490 495	
agt atg ttg aag cta gct gag aga atg gtt atg agt ttc tgc agt ggt	1536
Ser Met Leu Lys Leu Ala Glu Arg Met Val Met Ser Phe Cys Ser Gly	
500 505 510	
gtt ggc gcg tcg act gca cac gct tgg aca aca atg tcg aca aca gga	1584
Val Gly Ala Ser Thr Ala His Ala Trp Thr Thr Met Ser Thr Thr Gly	
515 520 525	
tcc gat gat gtt cgg gtc atg acc cgc aag agt atg gat gat cca gga	1632
Ser Asp Asp Val Arg Val Met Thr Arg Lys Ser Met Asp Asp Pro Gly	
530 535 540	
aga cct ccg ggt att gtt ctt agt gca gct act tca ttc tgg atc cca	1680
Arg Pro Pro Gly Ile Val Leu Ser Ala Ala Thr Ser Phe Trp Ile Pro	
545 550 555 560	
gtt gct ccc aaa cgt gtt ttt gat ttc ctc cgt gac gaa aat tca aga	1728
Val Ala Pro Lys Arg Val Phe Asp Phe Leu Arg Asp Glu Asn Ser Arg	
565 570 575	
aaa gag tgg gat att ctg tca aat gga ggt atg gtt cag gaa atg gct	1776
Lys Glu Trp Asp Ile Leu Ser Asn Gly Gly Met Val Gln Glu Met Ala	
580 585 590	
cat ata gcc aat ggt cat gaa cct gga aac tgt gtc tcc ttg ctc cga	1824
His Ile Ala Asn Gly His Glu Pro Gly Asn Cys Val Ser Leu Leu Arg	
595 600 605	
gtc aat agt gga aac tcg agc cag agc aac atg ttg att cta caa gag	1872
Val Asn Ser Gly Asn Ser Ser Gln Ser Asn Met Leu Ile Leu Gln Glu	
610 615 620	
agc tgt aca gat gca tca gga tcg tat gtg att tac gcg cca gtg gat	1920
Ser Cys Thr Asp Ala Ser Gly Ser Tyr Val Ile Tyr Ala Pro Val Asp	
625 630 635 640	
ata gtg gcg atg aat gtg gtt cta agc ggt gga gat cct gat tac gtg	1968
Ile Val Ala Met Asn Val Val Leu Ser Gly Gly Asp Pro Asp Tyr Val	
645 650 655	
gcg ttg ttg ccg tct ggt ttt gct att tta ccg gat ggt tcg gtt gga	2016
Ala Leu Leu Pro Ser Gly Phe Ala Ile Leu Pro Asp Gly Ser Val Gly	

	660		665		670	
	gga gga gat ggg aat cag cat cag gaa atg gtt tct act act tct tct					2064
	Gly Gly Asp Gly Asn Gln His Gln Glu Met Val Ser Thr Thr Ser Ser					
	675		680		685	
	ggg agt tgt ggt ggt tgc ctt tta acc gtt gcg ttt cag att ctt gtt					2112
	Gly Ser Cys Gly Gly Ser Leu Leu Thr Val Ala Phe Gln Ile Leu Val					
	690		695		700	
	gac tct gtt cct aca gct aaa ctc tca ctt gcc tgc gtg gct acg gtt					2160
	Asp Ser Val Pro Thr Ala Lys Leu Ser Leu Gly Ser Val Ala Thr Val					
	705		710		715	720
	aat agt ctg atc aaa tgt acg gtg gag agg att aaa gct gct gtt tct					2208
	Asn Ser Leu Ile Lys Cys Thr Val Glu Arg Ile Lys Ala Ala Val Ser					
	725		730		735	
	tgt gat gtt gga gga gga gcg tag					2232
	Cys Asp Val Gly Gly Ala					
	740					
	<210> 446 <211> 743 <212> PRT <213> Arabidopsis thaliana <400> 446					
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	Pro Lys Ser Thr Ser Asp Asn Asp Leu Gly Ile Thr Gly Ser Arg Glu					
	20		25		30	
	Asp Asp Phe Glu Thr Lys Ser Gly Thr Glu Val Thr Thr Glu Asn Pro					
	35		40		45	
	Ser Gly Glu Glu Leu Gln Asp Pro Ser Gln Arg Pro Asn Lys Lys Lys					
	50		55		60	
	Arg Tyr His Arg His Thr Gln Arg Gln Ile Gln Glu Leu Glu Ser Phe					
	65		70		75	80
	Phe Lys Glu Cys Pro His Pro Asp Asp Lys Gln Arg Lys Glu Leu Ser					
	85		90		95	
	Arg Asp Leu Asn Leu Glu Pro Leu Gln Val Lys Phe Trp Phe Gln Asn					
	100		105		110	
	Lys Arg Thr Gln Met Lys Ala Gln Ser Glu Arg His Glu Asn Gln Ile					
	115		120		125	

Leu Lys Ser Asp Asn Asp Lys Leu Arg Ala Glu Asn Asn Arg Tyr Lys
130 135 140

Glu Ala Leu Ser Asn Ala Thr Cys Pro Asn Cys Gly Gly Pro Ala Ala
145 150 155 160

Ile Gly Glu Met Ser Phe Asp Glu Gln His Leu Arg Ile Glu Asn Ala
165 170 175

Arg Leu Arg Glu Glu Ile Asp Arg Ile Ser Ala Ile Ala Ala Lys Tyr
180 185 190

Val Gly Lys Pro Leu Gly Ser Ser Phe Ala Pro Leu Ala Ile His Ala
195 200 205

Pro Ser Arg Ser Leu Asp Leu Glu Val Gly Asn Phe Gly Asn Gln Thr
210 215 220

Gly Phe Val Gly Glu Met Tyr Gly Thr Gly Asp Ile Leu Arg Ser Val
225 230 235 240

Ser Ile Pro Ser Glu Thr Asp Lys Pro Ile Ile Val Glu Leu Ala Val
245 250 255

Ala Ala Met Glu Glu Leu Val Arg Met Ala Gln Thr Gly Asp Pro Leu
260 265 270

Trp Leu Ser Thr Asp Asn Ser Val Glu Ile Leu Asn Glu Glu Glu Tyr
275 280 285

Phe Arg Thr Phe Pro Arg Gly Ile Gly Pro Lys Pro Leu Gly Leu Arg
290 295 300

Ser Glu Ala Ser Arg Gln Ser Ala Val Val Ile Met Asn His Ile Asn
305 310 315 320

Leu Val Glu Ile Leu Met Asp Val Asn Gln Trp Ser Cys Val Phe Ser
325 330 335

Gly Ile Val Ser Arg Ala Leu Thr Leu Glu Val Leu Ser Thr Gly Val
340 345 350

Ala Gly Asn Tyr Asn Gly Ala Leu Gln Val Met Thr Ala Glu Phe Gln

355

360

365

Val Pro Ser Pro Leu Val Pro Thr Arg Glu Asn Tyr Phe Val Arg Tyr
370 375 380

Cys Lys Gln His Ser Asp Gly Ser Trp Ala Val Val Asp Val Ser Leu
385 390 395 400

Asp Ser Leu Arg Pro Ser Thr Pro Ile Leu Arg Thr Arg Arg Arg Pro
405 410 415

Ser Gly Cys Leu Ile Gln Glu Leu Pro Asn Gly Tyr Ser Lys Val Thr
420 425 430

Trp Ile Glu His Met Glu Val Asp Asp Arg Ser Val His Asn Met Tyr
435 440 445

Lys Pro Leu Val Gln Ser Gly Leu Ala Phe Gly Ala Lys Arg Trp Val
450 455 460

Ala Thr Leu Glu Arg Gln Cys Glu Arg Leu Ala Ser Ser Met Ala Ser
465 470 475 480

Asn Ile Pro Gly Asp Leu Ser Val Ile Thr Ser Pro Glu Gly Arg Lys
485 490 495

Ser Met Leu Lys Leu Ala Glu Arg Met Val Met Ser Phe Cys Ser Gly
500 505 510

Val Gly Ala Ser Thr Ala His Ala Trp Thr Thr Met Ser Thr Thr Gly
515 520 525

Ser Asp Asp Val Arg Val Met Thr Arg Lys Ser Met Asp Asp Pro Gly
530 535 540

Arg Pro Pro Gly Ile Val Leu Ser Ala Ala Thr Ser Phe Trp Ile Pro
545 550 555 560

Val Ala Pro Lys Arg Val Phe Asp Phe Leu Arg Asp Glu Asn Ser Arg
565 570 575

Lys Glu Trp Asp Ile Leu Ser Asn Gly Gly Met Val Gln Glu Met Ala
580 585 590

His Ile Ala Asn Gly His Glu Pro Gly Asn Cys Val Ser Leu Leu Arg
595 600 605

Val Asn Ser Gly Asn Ser Ser Gln Ser Asn Met Leu Ile Leu Gln Glu
610 615 620

Ser Cys Thr Asp Ala Ser Gly Ser Tyr Val Ile Tyr Ala Pro Val Asp
625 630 635 640

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Asn Trp Leu Lys Leu Asn Leu Ile Pro Ile Glu Ser Ser Leu Lys Glu
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Lys Val Ser Ser Pro Pro Arg Pro Gln Arg Pro Pro Ile Gln Ala Leu
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Leu His Ser Trp His Asp Arg Leu Glu Lys Leu Pro Asp Glu Val Ala
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Lys Ser Ala Ile Ser Ser Phe Ala Val Ile Lys Thr Ile Leu Leu
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Arg Glu Phe Ile Arg Lys Lys Gln Gly Phe Glu Asp Trp Tyr Gln Lys
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675 680 685

Ala Thr Thr Ser Ser Arg Asp His Val Thr Glu Arg Arg Ile Ala Val
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725 730 735

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Met Leu Ser Thr Ala Pro Ala Phe Ser Phe Ser Glu Pro Gly Leu Val	
1 5 10 15	
Asn Gln Phe Ser Gly Phe Gln Thr Gly Phe Thr Pro Trp Glu Trp Asp	
20 25 30	
Cys Ser Asp Leu Phe Phe Val Asp Gln Met Ser Leu Glu Pro Ala Ile	
35 40 45	
Pro Ser Pro Cys Tyr Gly Glu Ser Asp Thr Gly Ser Val Lys Ile Asn	
50 55 60	
Ser Gly Ser His Asp Met Lys Thr Gly Ser Asp Glu Ser Cys Ala Gly	
65 70 75 80	
Phe Val Lys Ile Asn Pro Arg Cys Asp Asp Ala Asp Ile Ser Asn Asp	
85 90 95	
Leu Pro Cys Ser Gln Ala Asp Glu Pro Asp Ser Asp Asp Thr Lys Gln	
100 105 110	
Leu Thr Ala Ile Thr Asn Phe Gly Ser Gly Glu Asn Asn His Asn Arg	
115 120 125	

Lys Lys Met Ile Gln Pro Glu Met Thr Asp Glu Arg Lys Arg Lys Arg
130 135 140

Met Glu Ser Asn Arg Glu Ser Ala Lys Arg Ser Arg Met Arg Lys Gln
145 150 155 160

Ser His Ile Asp Asn Leu Arg Glu Gln Val Asn Arg Leu Asp Leu Glu
165 170 175

Asn Arg Glu Leu Gly Asn Arg Leu Arg Leu Val Leu His Gln Leu Gln
180 185 190

Arg Val Asn Ser Asp Asn Asn Arg Leu Val Thr Glu Gln Glu Ile Leu
195 200 205

Arg Leu Arg Leu Ser Glu Met Arg Arg Ile Leu Ile Ile Arg Gln Leu
210 215 220

Gln Gln Gln Gln Gln Trp Glu Leu His Asn Arg Arg Met Ile Met Thr
225 230 235 240

Glu Gln Asn His Pro His Leu Gln
245

<210> 453 <211> 1740 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (601)..(1161) <223> G1818

<400> 453
taacaaatca aataattaga gaaataacca aaatttaact tttagaggga ctacaggatt 60
tgtactttgt acattcattat attatttgta tatatogttt catacattaa tttgaaccaa 120
tgtaaatata gtaaaattca atttaacatc atgagcaaat tcttattaaa attctcttaa 180
aattttgagc aaatttatgct ttcacattta acatttgaaa acatcatttt taacaagata 240
ttcaaaacta agttttgtac agcaaaattt taactttcaa ttttatagag aaaaagggtat 300
tttttttttt gtttcatttt tataagacta ttatttgga tataatatat actttaagta 360
aaaacaaatc tctttctttt tctttcttat aataccaacc acaagtctgt cagtcacaca 420
catcacagta ataacattaa atattcttaa caaactacta aataggttga gattcatata 480
tgtaaaagaga tcactttcta atcttatcct accatatctt atatacgctt aatttctctt 540
tatatatgca aacctccaca taaaaatatc tcaaacccaa acacttcaaa caaaaaaaaa 600
atg gag aac aac aac aac aac cac caa cag cca ccg aaa gat aac gag 648

Met Glu Asn Asn Asn Asn His Gln Gln Pro Pro Lys Asp Asn Glu	
1 5 10 15	
caa cta aag agt ttc tgg tca aag ggg atg gaa ggt gac ttg aat gtc	696
Gln Leu Lys Ser Phe Trp Ser Lys Gly Met Glu Gly Asp Leu Asn Val	
20 25 30	
aag aat cac gag ttc ccc atc tct cgt atc aag agg ata atg aag ttt	744
Lys Asn His Glu Phe Pro Ile Ser Arg Ile Lys Arg Ile Met Lys Phe	
35 40 45	
gat cgg gat gtg agt atg atc gct gct gag gct cca aat ctc tta tct	792
Asp Pro Asp Val Ser Met Ile Ala Ala Glu Ala Pro Asn Leu Leu Ser	
50 55 60	
aag gct tgt gaa atg ttt gtc atg gac ctc acg atg cgt tca tgg ctc	840
Lys Ala Cys Glu Met Phe Val Met Asp Leu Thr Met Arg Ser Trp Leu	
65 70 75 80	
cat gct caa gag agc aac cga ctc acg ata cgg aaa tct gat gtt gat	888
His Ala Gln Glu Ser Asn Arg Leu Thr Ile Arg Lys Ser Asp Val Asp	
85 90 95	
gcc gta gtg tct caa acc gtc atc ttt gat ttc ttg cgt gat gat gtc	936
Ala Val Val Ser Gln Thr Val Ile Phe Asp Phe Leu Arg Asp Asp Val	
100 105 110	
cct aag gac gag gga gag ccc gtt gtc gcc gct gct gat cct gtg gac	984
Pro Lys Asp Glu Gly Glu Pro Val Val Ala Ala Asp Pro Val Asp	
115 120 125	
gat gtt gct gat cat gtg gct gtg cca gat ctt aac aat gaa gaa ctg	1032
Asp Val Ala Asp His Val Ala Val Pro Asp Leu Asn Asn Glu Glu Leu	
130 135 140	
ccg ccg gga acg gtg ata gga act ccg gtt tgt tac ggt tta gga ata	1080
Pro Pro Gly Thr Val Ile Gly Thr Pro Val Cys Tyr Gly Leu Gly Ile	
145 150 155 160	
cac gcg cca cac ccg cag atg cct gga gct tgg acc gag gag gat gcg	1128
His Ala Pro His Pro Gln Met Pro Gly Ala Trp Thr Glu Glu Asp Ala	
165 170 175	
act ggg gca aat gga gga aac ggt ggg aat taa tatttgatt ggggttttga	1181
Thr Gly Ala Asn Gly Gly Asn Gly Gly Asn	
180 185	
accgctgttg tgagaacttg aatttctttt tgagttctgc ttatgttttc aatgttatgt	1241
tttttagttg ttgaatgtat ttctgttgtt ttgtccaaaa aaaaaaaga atgtatttct	1301
gttgttgtct ttcaaatgaa tctaattggtt tatgaatatt ggcttttagat taatttatgc	1361
atacaaaaac acaaggatta cgataaaaa agtcctcagt ttaccatgga aaacataatc	1421
ttctagtgat tccttatgag agtagaaaag aatcatatat tataatctat ttcataagag	1481

ataggggtact gtaaacaagg atgtttatto ggcattttct ttttttttta atcactttta 1541
 cttgtcaaga ctcttttgtg ttgtcagctt ttgttagat tacattctag aggcaacaag 1601
 atccagagat ctagcaaaaa aaacttattt tgaacctga atctatttta aaaattttcc 1661
 aactcatttt tcgttcttat tctttgtttt ccaacggaat ttggcgcaca aacgatttat 1721
 ttgaattttg tctttcaag 1740

<210> 454 <211> 186 <212> PRT <213> Arabidopsis thaliana <400> 454

Met Glu Asn Asn Asn Asn Asn His Gln Gln Pro Pro Lys Asp Asn Glu
 1 5 10 15

Gln Leu Lys Ser Phe Trp Ser Lys Gly Met Glu Gly Asp Leu Asn Val
 20 25 30

Lys Asn His Glu Phe Pro Ile Ser Arg Ile Lys Arg Ile Met Lys Phe
 35 40 45

Asp Pro Asp Val Ser Met Ile Ala Ala Glu Ala Pro Asn Leu Leu Ser
 50 55 60

Lys Ala Cys Glu Met Phe Val Met Asp Leu Thr Met Arg Ser Trp Leu
 65 70 75 80

His Ala Gln Glu Ser Asn Arg Leu Thr Ile Arg Lys Ser Asp Val Asp
 85 90 95

Ala Val Val Ser Gln Thr Val Ile Phe Asp Phe Leu Arg Asp Asp Val
 100 105 110

Pro Lys Asp Glu Gly Glu Pro Val Val Ala Ala Ala Asp Pro Val Asp
 115 120 125

Asp Val Ala Asp His Val Ala Val Pro Asp Leu Asn Asn Glu Glu Leu
 130 135 140

Pro Pro Gly Thr Val Ile Gly Thr Pro Val Cys Tyr Gly Leu Gly Ile
 145 150 155 160

His Ala Pro His Pro Gln Met Pro Gly Ala Trp Thr Glu Glu Asp Ala
 165 170 175

Thr Gly Ala Asn Gly Gly Asn Gly Gly Asn
180 185

<210> 455 <211> 639 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(639) <223> G1819

<400> 455
atg gaa gag aac aac ggc aac aac aac cac tac ctg ccg caa cca tgc 48
Met Glu Glu Asn Asn Gly Asn Asn Asn His Tyr Leu Pro Gln Pro Ser
1 5 10 15
tct tcc caa ctg ccg ccg cca cca ttg tat tat caa tca atg ccg ttg 96
Ser Ser Gln Leu Pro Pro Pro Pro Leu Tyr Tyr Gln Ser Met Pro Leu
20 25 30
ccg tca tat tca ctg ccg ctg ccg tac tca ccg cag atg ccg aat tat 144
Pro Ser Tyr Ser Leu Pro Leu Pro Tyr Ser Pro Gln Met Arg Asn Tyr
35 40 45
tgg att gcg cag atg gga aac gca act gat gtt aag cat cat gcg ttt 192
Trp Ile Ala Gln Met Gly Asn Ala Thr Asp Val Lys His His Ala Phe
50 55 60
cca cta acc agg ata aag aaa atc atg aag tcc aac ccg gaa gtg aac 240
Pro Leu Thr Arg Ile Lys Lys Ile Met Lys Ser Asn Pro Glu Val Asn
65 70 75 80
atg gtc act gca gag gct ccg gtc ctt ata tgc aag gcc tgt gag atg 288
Met Val Thr Ala Glu Ala Pro Val Leu Ile Ser Lys Ala Cys Glu Met
85 90 95
ctc att ctt gat ctc aca atg cga tgc tgg ctt cat acc gtg gag ggc 336
Leu Ile Leu Asp Leu Thr Met Arg Ser Trp Leu His Thr Val Glu Gly
100 105 110
ggt cgc caa act ctc aag aga tcc gat acg ctc acg aga tcc gat atc 384
Gly Arg Gln Thr Leu Lys Arg Ser Asp Thr Leu Thr Arg Ser Asp Ile
115 120 125
tcc gcc gca acg act cgt agt ttc aaa ttt acc ttc ctt ggc gac gtt 432
Ser Ala Ala Thr Thr Arg Ser Phe Lys Phe Thr Phe Leu Gly Asp Val
130 135 140
gtc cca aga gac cct tcc gtc gtt acc gat gat ccc gtg cta cat ccg 480
Val Pro Arg Asp Pro Ser Val Val Thr Asp Asp Pro Val Leu His Pro
145 150 155 160
gac ggt gaa gta ctt cct ccg gga acg gtg ata gga tat ccg gtg ttt 528
Asp Gly Glu Val Leu Pro Pro Gly Thr Val Ile Gly Tyr Pro Val Phe
165 170 175
gat tgt aat ggt gtg tac gcg tca ccg cca cag atg cag gag tgg ccg 576
Asp Cys Asn Gly Val Tyr Ala Ser Pro Pro Gln Met Gln Glu Trp Pro
180 185 190
gcg gtg cct ggt gac gga gag gag gca gct ggg gaa att gga gga agc 624

Ala Val Pro Gly Asp Gly Glu Glu Ala Ala Gly Glu Ile Gly Gly Ser
195 200 205

agc ggc ggt aat tga
Ser Gly Gly Asn
210

639

<210> 456 <211> 212 <212> PRT <213> Arabidopsis thaliana <400> 456

Met Glu Glu Asn Asn Gly Asn Asn Asn His Tyr Leu Pro Gln Pro Ser
1 5 10 15

Ser Ser Gln Leu Pro Pro Pro Pro Leu Tyr Tyr Gln Ser Met Pro Leu
20 25 30

Pro Ser Tyr Ser Leu Pro Leu Pro Tyr Ser Pro Gln Met Arg Asn Tyr
35 40 45

Trp Ile Ala Gln Met Gly Asn Ala Thr Asp Val Lys His His Ala Phe
50 55 60

Pro Leu Thr Arg Ile Lys Lys Ile Met Lys Ser Asn Pro Glu Val Asn
65 70 75 80

Met Val Thr Ala Glu Ala Pro Val Leu Ile Ser Lys Ala Cys Glu Met
85 90 95

Leu Ile Leu Asp Leu Thr Met Arg Ser Trp Leu His Thr Val Glu Gly
100 105 110

Gly Arg Gln Thr Leu Lys Arg Ser Asp Thr Leu Thr Arg Ser Asp Ile
115 120 125

Ser Ala Ala Thr Thr Arg Ser Phe Lys Phe Thr Phe Leu Gly Asp Val
130 135 140

Val Pro Arg Asp Pro Ser Val Val Thr Asp Asp Pro Val Leu His Pro
145 150 155 160

Asp Gly Glu Val Leu Pro Pro Gly Thr Val Ile Gly Tyr Pro Val Phe
165 170 175

Asp Cys Asn Gly Val Tyr Ala Ser Pro Pro Gln Met Gln Glu Trp Pro
180 185 190

[illegible]

gaa cct gtt tca caa gaa ccc aac aac ttc caa ggg tta ctt cct ccc 528
Glu Pro Val Ser Gln Glu Pro Asn Asn Phe Gln Gly Leu Leu Pro Pro
165 170 175

caa gca tcc cct gtt tgc cct cct tgg cct tac caa tac cct cca aac 576
Gln Ala Ser Pro Val Ser Pro Pro Trp Pro Tyr Gln Tyr Pro Pro Asn
180 185 190

cct agt ttc tac cac atg ccc gtc tac tgg ggc tgc gcg ata ccg gtt 624
Pro Ser Phe Tyr His Met Pro Val Tyr Trp Gly Cys Ala Ile Pro Val
195 200 205

tgg tct acc ctc gac act tct aca tgt ctt ggg aaa agg aca aga gac 672
Trp Ser Thr Leu Asp Thr Ser Thr Cys Leu Gly Lys Arg Thr Arg Asp
210 215 220

gaa act tct cat gaa act gtt aaa gag agt aaa aat gct ttt gag aga 720
Glu Thr Ser His Glu Thr Val Lys Glu Ser Lys Asn Ala Phe Glu Arg
225 230 235 240

aca agc ttg ctt ttg gaa tct cag agc atc aaa aat gaa aca agt atg 768
Thr Ser Leu Leu Leu Glu Ser Gln Ser Ile Lys Asn Glu Thr Ser Met
245 250 255

gct aca aat aac cat gtg tgg tat cca gta ccg atg acc cgc gag aag 816
Ala Thr Asn Asn His Val Trp Tyr Pro Val Pro Met Thr Arg Glu Lys
260 265 270

aca caa gaa ttc agc ttt ttc agt aat gga gct gaa aca aag agc agc 864
Thr Gln Glu Phe Ser Phe Phe Ser Asn Gly Ala Glu Thr Lys Ser Ser
275 280 285

aac aac aga ttc gtc cct gaa acg tat ctt aac ctg caa gca aac cct 912
Asn Asn Arg Phe Val Pro Glu Thr Tyr Leu Asn Leu Gln Ala Asn Pro
290 295 300

gca gcc atg gca aga tct atg aac ttc aga gag agc ata taa 954
Ala Ala Met Ala Arg Ser Met Asn Phe Arg Glu Ser Ile
305 310 315

<210> 458 <211> 317 <212> PRT <213> Arabidopsis thaliana <400> 458
Met Asn Asn Gln Ser Val Thr Asp Asn Thr Ser Leu Lys Leu Ser Ser
1 5 10 15

Asn Leu Asn Asn Glu Ser Lys Glu Thr Ser Glu Asn Ser Asp Asp Gln
20 25 30

His Ser Glu Ile Thr Thr Ile Thr Ser Glu Glu Glu Lys Thr Thr Glu
35 40 45

Leu Lys Lys Pro Asp Lys Ile Leu Pro Cys Pro Arg Cys Asn Ser Ala
50 55 60

Asp Thr Lys Phe Cys Tyr Tyr Asn Asn Tyr Asn Val Asn Gln Pro Arg
65 70 75 80

His Phe Cys Arg Lys Cys Gln Arg Tyr Trp Thr Ala Gly Gly Ser Met
85 90 95

Arg Ile Val Pro Val Gly Ser Gly Arg Arg Lys Asn Lys Gly Trp Val
100 105 110

Ser Ser Asp Gln Tyr Leu His Ile Thr Ser Glu Asp Thr Asp Asn Tyr
115 120 125

Asn Ser Ser Ser Thr Lys Ile Leu Ser Phe Glu Ser Ser Asp Ser Leu
130 135 140

Val Thr Glu Arg Pro Lys His Gln Ser Asn Glu Val Lys Ile Asn Ala
145 150 155 160

Glu Pro Val Ser Gln Glu Pro Asn Asn Phe Gln Gly Leu Leu Pro Pro
165 170 175

Gln Ala Ser Pro Val Ser Pro Pro Trp Pro Tyr Gln Tyr Pro Pro Asn
180 185 190

Pro Ser Phe Tyr His Met Pro Val Tyr Trp Gly Cys Ala Ile Pro Val
195 200 205

Trp Ser Thr Leu Asp Thr Ser Thr Cys Leu Gly Lys Arg Thr Arg Asp
210 215 220

Glu Thr Ser His Glu Thr Val Lys Glu Ser Lys Asn Ala Phe Glu Arg
225 230 235 240

Thr Ser Leu Leu Leu Glu Ser Gln Ser Ile Lys Asn Glu Thr Ser Met
245 250 255

Ala Thr Asn Asn His Val Trp Tyr Pro Val Pro Met Thr Arg Glu Lys
260 265 270

Thr Gln Glu Phe Ser Phe Phe Ser Asn Gly Ala Glu Thr Lys Ser Ser
275 280 285

Asn Asn Arg Phe Val Pro Glu Thr Tyr Leu Asn Leu Gln Ala Asn Pro
290 295 300

Ala Ala Met Ala Arg Ser Met Asn Phe Arg Glu Ser Ile
305 310 315

<210> 459 <211> 658 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (5)..(592) <223> G1931

<400> 459
atca atg gaa ggg gtt gac aac aca aat cct atg tta acc cta gaa gaa 49
Met Glu Gly Val Asp Asn Thr Asn Pro Met Leu Thr Leu Glu Glu
1 5 10 15
ggc gaa aac aac aat cct ttt tct tcc tta gat gac aaa aca tta atg 97
Gly Glu Asn Asn Asn Pro Phe Ser Ser Leu Asp Asp Lys Thr Leu Met
20 25 30
atg atg gct cct tcg tta atc ttt tcg ggc gat gta ggt cca tct tct 145
Met Met Ala Pro Ser Leu Ile Phe Ser Gly Asp Val Gly Pro Ser Ser
35 40 45
tct tct tgt act cca gca ggt tat cat cta tct gct cag ctg gag aac 193
Ser Ser Cys Thr Pro Ala Gly Tyr His Leu Ser Ala Gln Leu Glu Asn
50 55 60
ttt cga gga ggt gga gga gag atg gga gga tta gtg agt aat aat agc 241
Phe Arg Gly Gly Gly Gly Glu Met Gly Gly Leu Val Ser Asn Asn Ser
65 70 75
aat aat agt gat cat aat aag aat tgc aac aaa gga aaa ggg aag aga 289
Asn Asn Ser Asp His Asn Lys Asn Cys Asn Lys Gly Lys Gly Lys Arg
80 85 90 95
act ttg gca atg cag agg ata gct ttt cat aca agg agt gat gat gat 337
Thr Leu Ala Met Gln Arg Ile Ala Phe His Thr Arg Ser Asp Asp Asp
100 105 110
gtt ctt gat gat ggt tat cgt tgg cga aag tac ggt cag aaa tct gtc 385
Val Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Ser Val
115 120 125
aag aac aat gct cat ccc agg agc tat tat aga tgt aca tac cac aca 433
Lys Asn Asn Ala His Pro Arg Ser Tyr Tyr Arg Cys Thr Tyr His Thr
130 135 140
tgc aac gtg aag aaa caa gtg caa aga ctg gca aaa gat cca aac gtt 481
Cys Asn Val Lys Lys Gln Val Gln Arg Leu Ala Lys Asp Pro Asn Val
145 150 155
gtc gta aca acc tac gaa ggt gtt cat aat cat cct tgt gag aag ctc 529
Val Val Thr Thr Tyr Glu Gly Val His Asn His Pro Cys Glu Lys Leu
160 165 170 175
atg gag act ctt agc cct ctc ctt agg caa ctt cag ttc ctc tca aga 577
Met Glu Thr Leu Ser Pro Leu Leu Arg Gln Leu Gln Phe Leu Ser Arg
180 185 190

gtt tct gat ctg taa ttattgaatg ttaattagtg gtgtaataca ttaattatgc 632
Val Ser Asp Leu
195

tttaattctct ccattgaccc tcaatc 658

<210> 460 <211> 195 <212> PRT <213> Arabidopsis thaliana <400> 460

Met Glu Gly Val Asp Asn Thr Asn Pro Met Leu Thr Leu Glu Gly
1 5 10 15

Glu Asn Asn Asn Pro Phe Ser Ser Leu Asp Asp Lys Thr Leu Met Met
20 25 30

Met Ala Pro Ser Leu Ile Phe Ser Gly Asp Val Gly Pro Ser Ser Ser
35 40 45

Ser Cys Thr Pro Ala Gly Tyr His Leu Ser Ala Gln Leu Glu Asn Phe
50 55 60

Arg Gly Gly Gly Gly Glu Met Gly Gly Leu Val Ser Asn Asn Ser Asn
65 70 75 80

Asn Ser Asp His Asn Lys Asn Cys Asn Lys Gly Lys Gly Lys Arg Thr
85 90 95

Leu Ala Met Gln Arg Ile Ala Phe His Thr Arg Ser Asp Asp Asp Val
100 105 110

Leu Asp Asp Gly Tyr Arg Trp Arg Lys Tyr Gly Gln Lys Ser Val Lys
115 120 125

Asn Asn Ala His Pro Arg Ser Tyr Tyr Arg Cys Thr Tyr His Thr Cys
130 135 140

Asn Val Lys Lys Gln Val Gln Arg Leu Ala Lys Asp Pro Asn Val Val
145 150 155 160

Val Thr Thr Tyr Glu Gly Val His Asn His Pro Cys Glu Lys Leu Met
165 170 175

Glu Thr Leu Ser Pro Leu Leu Arg Gln Leu Gln Phe Leu Ser Arg Val
180 185 190

Ser Asp Leu
195

<210> 461 <211> 1172 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (92)..(844) <223> G1939

<400> 461
aatcattagc ttcttctctt ctcttctctc acagagagag taatcacaag ccaagtgaga 60

aaaagaaaaac actaaacca gatcgaaaac c atg tct att aac aac aac aac 112
Met Ser Ile Asn Asn Asn Asn
1 5

aac aac aac aac aat aac aac gat ggt ctt atg atc tca tca aac gga 160
Asn Asn Asn Asn Asn Asn Asp Gly Leu Met Ile Ser Ser Asn Gly
10 15 20

gct tta atc gaa caa caa cca tca gtc gtt gtg aag aaa cca ccg gcg 208
Ala Leu Ile Glu Gln Gln Pro Ser Val Val Val Lys Lys Pro Pro Ala
25 30 35

aaa gat cga cat agc aaa gtc gat gga aga ggg aga aga atc cgt atg 256
Lys Asp Arg His Ser Lys Val Asp Gly Arg Gly Arg Arg Ile Arg Met
40 45 50 55

ccg att ata tgt gct gct cgt gtt ttt cag cta acg aga gag ctt ggt 304
Pro Ile Ile Cys Ala Ala Arg Val Phe Gln Leu Thr Arg Glu Leu Gly
60 65 70

cat aag tca gat ggc caa aca att gaa tgg tta ctt cgt caa gca gag 352
His Lys Ser Asp Gly Gln Thr Ile Glu Trp Leu Leu Arg Gln Ala Glu
75 80 85

cct tct att ata gct gca aca gga act ggt aca act cca gcg agt ttc 400
Pro Ser Ile Ile Ala Ala Thr Gly Thr Gly Thr Thr Pro Ala Ser Phe
90 95 100

tca act gct tct gtc tct atc cgt gga gcc acc aat tct act tct tta 448
Ser Thr Ala Ser Val Ser Ile Arg Gly Ala Thr Asn Ser Thr Ser Leu
105 110 115

gat cat aaa ccc act tct tta ctt ggt ggt acg tca ccg ttt ata ctt 496
Asp His Lys Pro Thr Ser Leu Leu Gly Gly Thr Ser Pro Phe Ile Leu
120 125 130 135

ggg aaa cgt gtt aga gct gat gag gat agt aat aat agt cat aat cat 544
Gly Lys Arg Val Arg Ala Asp Glu Asp Ser Asn Asn Ser His Asn His
140 145 150

agt tct gtt ggt aaa gat gag acc ttt acg aca aca cca gct ggg ttt 592
Ser Ser Val Gly Lys Asp Glu Thr Phe Thr Thr Thr Pro Ala Gly Phe
155 160 165

tgg gct gtt ccg gcg agg ccg gat ttt gga caa gtt tgg agt ttt gct 640
Trp Ala Val Pro Ala Arg Pro Asp Phe Gly Gln Val Trp Ser Phe Ala
170 175 180

gga gct cca caa gag atg ttt tta caa caa caa cat cat cat cag caa 688
 Gly Ala Pro Gln Glu Met Phe Leu Gln Gln Gln His His His Gln Gln
 185 190 195

cca ttg ttt gtt cat cag caa cag caa caa gct gca atg ggt gaa 736
 Pro Leu Phe Val His Gln Gln Gln Gln Gln Ala Ala Met Gly Glu
 200 205 210 215

gct tct gct gct aga gtt ggg aat tat ctt ccg ggt cat ctt aat ttg 784
 Ala Ser Ala Ala Arg Val Gly Asn Tyr Leu Pro Gly His Leu Asn Leu
 220 225 230

ctt gct tct tta tcc ggt gga tct ccc ggg tcg gat cga aga gag gaa 832
 Leu Ala Ser Leu Ser Gly Gly Ser Pro Gly Ser Asp Arg Arg Glu Glu
 235 240 245

gat cca cgt taa tgggttaagc ccttttaggt ttgagggcaa aatttggtat 884
 Asp Pro Arg
 250

atatatttat tatcttctct tctctattgt tgcattgttt tctctatgtg tgtgttttag 944

tgtgtttaga gattgatttg gtttcagaat ctctgcaagt gatttgagag ttttcgtag 1004

ctttaagtaa gttaaagacg gttgtttttg attagggtta aattagggtt taagaatctg 1064

ttgttttttt ggagggat cgaatttctta tcggatccaa gattactttt agggaaaaaa 1124

ggaaaatttc agaaaccacg gtggtttctt ttctcttttt tttttttg 1172

<210> 462 <211> 250 <212> PRT <213> Arabidopsis thaliana <400> 462

Met Ser Ile Asn Asn Asn Asn Asn Asn Asn Asn Asn Asn Asp Gly
 1 5 10 15

Leu Met Ile Ser Ser Asn Gly Ala Leu Ile Glu Gln Gln Pro Ser Val
 20 25 30

Val Val Lys Lys Pro Pro Ala Lys Asp Arg His Ser Lys Val Asp Gly
 35 40 45

Arg Gly Arg Arg Ile Arg Met Pro Ile Ile Cys Ala Ala Arg Val Phe
 50 55 60

Gln Leu Thr Arg Glu Leu Gly His Lys Ser Asp Gly Gln Thr Ile Glu
 65 70 75 80

Trp Leu Leu Arg Gln Ala Glu Pro Ser Ile Ile Ala Ala Thr Gly Thr
 85 90 95

Gly Thr Thr Pro Ala Ser Phe Ser Thr Ala Ser Val Ser Ile Arg Gly
100 105 110

Ala Thr Asn Ser Thr Ser Leu Asp His Lys Pro Thr Ser Leu Leu Gly
115 120 125

Gly Thr Ser Pro Phe Ile Leu Gly Lys Arg Val Arg Ala Asp Glu Asp
130 135 140

Ser Asn Asn Ser His Asn His Ser Ser Val Gly Lys Asp Glu Thr Phe
145 150 155 160

Thr Thr Thr Pro Ala Gly Phe Trp Ala Val Pro Ala Arg Pro Asp Phe
165 170 175

Gly Gln Val Trp Ser Phe Ala Gly Ala Pro Gln Glu Met Phe Leu Gln
180 185 190

Gln Gln His His His Gln Gln Pro Leu Phe Val His Gln Gln Gln Gln
195 200 205

Gln Gln Ala Ala Met Gly Glu Ala Ser Ala Ala Arg Val Gly Asn Tyr
210 215 220

Leu Pro Gly His Leu Asn Leu Leu Ala Ser Leu Ser Gly Gly Ser Pro
225 230 235 240

Gly Ser Asp Arg Arg Glu Glu Asp Pro Arg
245 250

<210> 463 <211> 513 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(513) <223> G1974

<400> 463
atg gtt gct gaa agt gat aat cgt gat ctg acg gtg gat acg gcg gcg 48
Met Val Ala Glu Ser Asp Asn Arg Asp Leu Thr Val Asp Thr Ala Ala
1 5 10 15

agc tgt ctg atg ttg tta tca gga att gga gaa cac gac gga aga aag 96
Ser Cys Leu Met Leu Leu Ser Gly Ile Gly Glu His Asp Gly Arg Lys
20 25 30

aaa cgt gtt ttc cga tgc aag act tgt gag aga gac ttc gat tcg ttc 144
Lys Arg Val Phe Arg Cys Lys Thr Cys Glu Arg Asp Phe Asp Ser Phe
35 40 45

caa gct tta gga ggc cac cgt gca agc cac tcg aaa cta acc aac agt Gln Ala Leu Gly Gly His Arg Ala Ser His Ser Lys Leu Thr Asn Ser 50 55 60	192
gac gat aaa tca ctt cct gga tca cca aag aag aag cct aaa act acg Asp Asp Lys Ser Leu Pro Gly Ser Pro Lys Lys Lys Pro Lys Thr Thr 65 70 75 80	240
act acg acg acg gct cat act tgt ccg att tgt ggc ttg gag ttt ccg Thr Thr Thr Thr Ala His Thr Cys Pro Ile Cys Gly Leu Glu Phe Pro 85 90 95	288
atg gga caa gct ctt ggt ggt cac atg agg aaa cat agg aac gag aaa Met Gly Gln Ala Leu Gly Gly His Met Arg Lys His Arg Asn Glu Lys 100 105 110	336
gaa cga gaa aag gct tct aac gta ttg gtt acg cat tct ttc atg ccg Glu Arg Glu Lys Ala Ser Asn Val Leu Val Thr His Ser Phe Met Pro 115 120 125	384
gag acg aca acg gtg acg act ttg aag aaa tcg agt agt ggg aag aga Glu Thr Thr Thr Val Thr Thr Leu Lys Lys Ser Ser Ser Gly Lys Arg 130 135 140	432
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Gln Ala Leu Gly Gly His Arg Ala Ser His Ser Lys Leu Thr Asn Ser 50 55 60	
Asp Asp Lys Ser Leu Pro Gly Ser Pro Lys Lys Lys Pro Lys Thr Thr 65 70 75 80	
Thr Thr Thr Thr Ala His Thr Cys Pro Ile Cys Gly Leu Glu Phe Pro 85 90 95	

Met Gly Gln Ala Leu Gly Gly His Met Arg Lys His Arg Asn Glu Lys
100 105 110

Glu Arg Glu Lys Ala Ser Asn Val Leu Val Thr His Ser Phe Met Pro
115 120 125

Glu Thr Thr Thr Val Thr Thr Leu Lys Lys Ser Ser Ser Gly Lys Arg
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Asn His Pro Gln Tyr Gly Ile Glu Gln Pro Ser Ser Gln Phe Ser Ser
10 15 20

gat ctg ttc ggc ttc aac ctg gtt tca gcg ccg gac cag cac cat cgt 152
Asp Leu Phe Gly Phe Asn Leu Val Ser Ala Pro Asp Gln His His Arg
25 30 35

ctt cat ttc acc gac cat gag ata agt tta ttg cca cgt gga ata caa 200
Leu His Phe Thr Asp His Glu Ile Ser Leu Leu Pro Arg Gly Ile Gln
40 45 50

ggg ctt acg gtg gct gga aac aac agt aac act att aca acg atc cag 248
Gly Leu Thr Val Ala Gly Asn Asn Ser Asn Thr Ile Thr Thr Ile Gln
55 60 65

agt ggt ggc tgt gtt ggt ggg ttt agt ggc ttt acg gac ggc gga gga 296
Ser Gly Gly Cys Val Gly Gly Phe Ser Gly Phe Thr Asp Gly Gly Gly
70 75 80 85

aca ggg agg tgg ccg agg caa gag acg ttg atg ttg ttg gag gtc aga 344
Thr Gly Arg Trp Pro Arg Gln Glu Thr Leu Met Leu Leu Glu Val Arg
90 95 100

tct cgt ctt gat cac aag ttc aaa gaa gct aat caa aag ggt cct ctg 392
Ser Arg Leu Asp His Lys Phe Lys Glu Ala Asn Gln Lys Gly Pro Leu
105 110 115

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Trp Asp Glu Val Ser Arg Ile Met Ser Glu Glu His Gly Tyr Thr Arg	
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Ser Gly Lys Lys Cys Arg Glu Lys Phe Glu Asn Leu Tyr Lys Tyr Tyr	
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Lys Lys Thr Lys Lys Glu Gly Lys Ser Gly Arg Arg Gln Asp Gly Lys Asn	
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Tyr Arg Phe Phe Arg Gln Leu Glu Ala Ile Tyr Gly Glu Ser Lys Asp	
170 175 180	
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Ser Val Ser Cys Tyr Asn Asn Thr Gln Phe Ile Met Thr Asn Ala Leu	
185 190 195	
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His Ser Asn Phe Arg Ala Ser Asn Ile His Asn Ile Val Pro His His	
200 205 210	
cag aat ccc ttg atg acc aat acc aat act caa agt caa agc ctt agc	728
Gln Asn Pro Leu Met Thr Asn Thr Asn Thr Gln Ser Gln Ser Leu Ser	
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Ile Ser Asn Asn Phe Asn Ser Ser Ser Ser Asp Leu Thr Ser Ser	
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Ser Glu Gly Asn Glu Thr Thr Lys Arg Glu Gly Met His Trp Lys Glu	
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Lys Ile Lys Glu Phe Ile Gly Val His Met Glu Arg Leu Ile Glu Lys	
265 270 275	
caa gat ttt tgg ctt gag aag ttg atg aag att gtg gaa gac aaa gaa	920
Gln Asp Phe Trp Leu Glu Lys Leu Met Lys Ile Val Glu Asp Lys Glu	
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Arg Ile Asp Lys Glu Arg Ser Phe Trp Thr Lys Glu Arg Glu Arg Ile	
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Glu Ala Arg Asp Val Ala Val Ile Asn Ala Leu Gln Tyr Leu Thr Gly	
330 335 340	

agg gca ttg ata agg ccg gat tct tgg tct cct aca gag agg att aat 1112
Arg Ala Leu Ile Arg Pro Asp Ser Ser Ser Pro Thr Glu Arg Ile Asn
345 350 355

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Gly Asn Gly Ser Asp Lys Met Met Ala Asp Asn Glu Phe Ala Asp Glu
360 365 370

gga aat aag ggc aag atg gat aaa aaa caa atg aat aag aaa agg aag 1208
Gly Asn Lys Gly Lys Met Asp Lys Lys Gln Met Asn Lys Lys Arg Lys
375 380 385

gag aaa tgg tca agc cac gga ggg aat cat cca aga acc aaa gag aat 1256
Glu Lys Trp Ser Ser His Gly Gly Asn His Pro Arg Thr Lys Glu Asn
390 395 400 405

atg atg ata tac aac aat caa gaa act aag att aat gat ttt tgt cga 1304
Met Met Ile Tyr Asn Asn Gln Glu Thr Lys Ile Asn Asp Phe Cys Arg
410 415 420

gat gat gac caa tgc cat cat gaa ggt tac tca cct tca aac tcc aag 1352
Asp Asp Asp Gln Cys His His Glu Gly Tyr Ser Pro Ser Asn Ser Lys
425 430 435

aac gca gga act ccg agc tgc agc aat gcc atg gca gct agt aca aag 1400
Asn Ala Gly Thr Pro Ser Cys Ser Asn Ala Met Ala Ala Ser Thr Lys
440 445 450

tgc ttt cca ttg ott gaa gga gaa gga gat cag aac ttg tgg gag ggt 1448
Cys Phe Pro Leu Leu Glu Gly Glu Gly Asp Gln Asn Leu Trp Glu Gly
455 460 465

tat ggt ttg aag caa agg aaa gaa aat aat cat cag taa gctacatttt 1497
Tyr Gly Leu Lys Gln Arg Lys Glu Asn Asn His Gln
470 475 480

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20 25 30

Asp Gln His His Arg Leu His Phe Thr Asp His Glu Ile Ser Leu Leu
35 40 45

Pro Arg Gly Ile Gln Gly Leu Thr Val Ala Gly Asn Asn Ser Asn Thr
50 55 60

Ile Thr Thr Ile Gln Ser Gly Gly Cys Val Gly Gly Phe Ser Gly Phe
 65 70 75 80
 Thr Asp Gly Gly Gly Thr Gly Arg Trp Pro Arg Gln Glu Thr Leu Met
 85 90 95
 Leu Leu Glu Val Arg Ser Arg Leu Asp His Lys Phe Lys Glu Ala Asn
 100 105 110
 Gln Lys Gly Pro Leu Trp Asp Glu Val Ser Arg Ile Met Ser Glu Glu
 115 120 125
 His Gly Tyr Thr Arg Ser Gly Lys Lys Cys Arg Glu Lys Phe Glu Asn
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 Leu Tyr Lys Tyr Tyr Lys Lys Thr Lys Glu Gly Lys Ser Gly Arg Arg
 145 150 155 160
 Gln Asp Gly Lys Asn Tyr Arg Phe Phe Arg Gln Leu Glu Ala Ile Tyr
 165 170 175
 Gly Glu Ser Lys Asp Ser Val Ser Cys Tyr Asn Asn Thr Gln Phe Ile
 180 185 190
 Met Thr Asn Ala Leu His Ser Asn Phe Arg Ala Ser Asn Ile His Asn
 195 200 205
 Ile Val Pro His His Gln Asn Pro Leu Met Thr Asn Thr Asn Thr Gln
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 Ser Gln Ser Leu Ser Ile Ser Asn Asn Phe Asn Ser Ser Ser Asp Leu
 225 230 235 240
 Asp Leu Thr Ser Ser Ser Glu Gly Asn Glu Thr Thr Lys Arg Glu Gly
 245 250 255
 Met His Trp Lys Glu Lys Ile Lys Glu Phe Ile Gly Val His Met Glu
 260 265 270
 Arg Leu Ile Glu Lys Gln Asp Phe Trp Leu Glu Lys Leu Met Lys Ile
 275 280 285
 Val Glu Asp Lys Glu His Gln Arg Met Leu Arg Glu Glu Glu Trp Arg

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Arg Ile Glu Ala Glu Arg Ile Asp Lys Glu Arg Ser Phe Trp Thr Lys
305 310 315 320

Glu Arg Glu Arg Ile Glu Ala Arg Asp Val Ala Val Ile Asn Ala Leu
325 330 335

Gln Tyr Leu Thr Gly Arg Ala Leu Ile Arg Pro Asp Ser Ser Ser Pro
340 345 350

Thr Glu Arg Ile Asn Gly Asn Gly Ser Asp Lys Met Met Ala Asp Asn
355 360 365

Glu Phe Ala Asp Glu Gly Asn Lys Gly Lys Met Asp Lys Lys Gln Met
370 375 380

Asn Lys Lys Arg Lys Glu Lys Trp Ser Ser His Gly Gly Asn His Pro
385 390 395 400

Arg Thr Lys Glu Asn Met Met Ile Tyr Asn Asn Gln Glu Thr Lys Ile
405 410 415

Asn Asp Phe Cys Arg Asp Asp Asp Gln Cys His His Glu Gly Tyr Ser
420 425 430

Pro Ser Asn Ser Lys Asn Ala Gly Thr Pro Ser Cys Ser Asn Ala Met
435 440 445

Ala Ala Ser Thr Lys Cys Phe Pro Leu Leu Glu Gly Glu Gly Asp Gln
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Gln

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agg caa gtt	aca tac acg aag	aga aaa aat ggg	att ttg aag aaa gcc	96
Arg Gln Val	Thr Tyr Thr Lys	Arg Lys Asn Gly	Ile Leu Lys Lys Ala	
	20	25	30	
aaa gag tta	tcg att ttg tgt	gat att gat att	gtc ctt ctt atg ttt	144
Lys Glu Leu	Ser Ile Leu Cys	Asp Ile Asp Ile	Val Leu Leu Met Phe	
	35	40	45	
tcc cct acc	gga aga gct act	gct ttc cat gga	gaa cac agg tat aat	192
Ser Pro Thr	Gly Arg Ala Thr	Ala Phe His Gly	Glu His Arg Tyr Asn	
	50	55	60	
tat caa aat	cat tct tat gca	ttg aag aaa act	ttt aag aaa ctg gat	240
Tyr Gln Asn	His Ser Tyr Ala	Leu Lys Lys Thr	Phe Lys Lys Leu Asp	
	65	70	75	80
cat gat gta	aat ata cat gac	ttt tta gga gca	agg aat caa act att	288
His Asp Val	Asn Ile His Asp	Phe Leu Gly Ala	Arg Asn Gln Thr Ile	
	85	90	95	
gag gta tgg	atc gac cat ctt	cgg ttc atg aat	ttt ctt gga tac ttt	336
Glu Val Trp	Ile Asp His Leu	Arg Phe Met Asn	Phe Leu Gly Tyr Phe	
	100	105	110	
tta atc tct	ttg agt caa att	gct aaa gtc tgt	gtt aac att acc aca	384
Leu Ile Ser	Leu Ser Gln Ile	Ala Lys Val Cys	Val Asn Ile Thr Thr	
	115	120	125	
cga cag ggt	cta agt aac caa	gta gcc att tac	caa gct cag cta atg	432
Arg Gln Gly	Leu Ser Asn Gln	Val Ala Ile Tyr	Gln Ala Gln Leu Met	
	130	135	140	
gag tgt cat	agg agg ttg agt	tgt tgg acg aac	atc gat aga ata gaa	480
Glu Cys His	Arg Arg Leu Ser	Cys Trp Thr Asn	Ile Asp Arg Ile Glu	
	145	150	155	160
aac act gag	cac ctc gat tta	ttg gaa gaa tca	ttg agg aaa tcc att	528
Asn Thr Glu	His Leu Asp Leu	Leu Leu Glu Glu	Ser Leu Arg Lys Ser	
	165	170	175	
gaa aga atc	cag att cac aag	gaa cat tac aga	aag aac caa ctc ttg	576
Glu Arg Ile	Gln Ile His Lys	Glu His Tyr Arg	Lys Asn Gln Leu Leu	
	180	185	190	
cca ata gaa	tgt gca aca aca	cag ttt cac agc	ggg ata cag ttg cct	624
Pro Ile Glu	Cys Ala Thr Thr	Gln Phe His Ser	Gly Ile Gln Leu Pro	
	195	200	205	
atg gcg atg	gga ggt aat agt	agt atg caa gaa	gct cac tcc atg tct	672
Met Ala Met	Gly Gly Asn Ser	Ser Met Gln Glu	Ala His Ser Met Ser	
	210	215	220	
tggt ctt cct	gat aat gat cac	cag caa aca atc	tta cct ggt gat tcc	720
Trp Leu Pro	Asp Asn Asp His	Gln Gln Thr Ile	Leu Pro Gly Asp Ser	
	225	230	235	240

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 Ser Phe Leu Pro His Arg Glu Met Asp Gly Ser Ile Pro Val Tyr Ser
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 Ser Cys Phe Phe Glu Ser Thr Lys Pro Glu Asp Gln Ile Cys Ser Asn
 260 265 270
 ccg gga caa cag ttt gag cag tta gaa caa caa gga aac ggt tgt ttg 864
 Pro Gly Gln Gln Phe Glu Gln Leu Glu Gln Gln Gly Cys Leu
 275 280 285
 ggg tta caa caa ctt gga gag gaa tat tca tat cct aca ccg ttt ggt 912
 Gly Leu Gln Gln Leu Gly Glu Glu Tyr Ser Tyr Pro Thr Pro Phe Gly
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 Thr Thr Leu Gly Met Glu Glu Asp Gln Glu Lys Lys Ile Lys Ser Glu
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 Met Glu Leu Asn Asn Leu Gln Gln Gln Gln Gln Gln Gln Gln Gln
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 caa caa caa gat cct tca atg tat gat ccc atg gct aat aat ggt 1056
 Gln Gln Gln Asp Pro Ser Met Tyr Asp Pro Met Ala Asn Asn Asn Gly
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 ggc tgc ttt cag att cct cat gat cag tcc atg ttt gtc aat gat cat 1104
 Gly Cys Phe Gln Ile Pro His Asp Gln Ser Met Phe Val Asn Asp His
 355 360 365
 cat cat cat cat cac cac cat cat caa aat tgg gtt cca gat tca atg 1152
 His His His His His His His His Gln Asn Trp Val Pro Asp Ser Met
 370 375 380
 ttt ggt cag act tct tac aac cag gtt tgt gtg ttc aca cct cca ttg 1200
 Phe Gly Gln Thr Ser Tyr Asn Gln Val Cys Val Phe Thr Pro Pro Leu
 385 390 395 400
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 Glu Leu Ser Arg

<210> 468 <211> 404 <212> PRT <213> Arabidopsis thaliana <400> 468

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Arg Gln Val Thr Tyr Thr Lys Arg Lys Asn Gly Ile Leu Lys Lys Ala
20 25 30

Lys Glu Leu Ser Ile Leu Cys Asp Ile Asp Ile Val Leu Leu Met Phe

35

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Ser Pro Thr Gly Arg Ala Thr Ala Phe His Gly Glu His Arg Tyr Asn
50 55 60

Tyr Gln Asn His Ser Tyr Ala Leu Lys Lys Thr Phe Lys Lys Leu Asp
65 70 75 80

His Asp Val Asn Ile His Asp Phe Leu Gly Ala Arg Asn Gln Thr Ile
85 90 95

Glu Val Trp Ile Asp His Leu Arg Phe Met Asn Phe Leu Gly Tyr Phe
100 105 110

Leu Ile Ser Leu Ser Gln Ile Ala Lys Val Cys Val Asn Ile Thr Thr
115 120 125

Arg Gln Gly Leu Ser Asn Gln Val Ala Ile Tyr Gln Ala Gln Leu Met
130 135 140

Glu Cys His Arg Arg Leu Ser Cys Trp Thr Asn Ile Asp Arg Ile Glu
145 150 155 160

Asn Thr Glu His Leu Asp Leu Leu Glu Glu Ser Leu Arg Lys Ser Ile
165 170 175

Glu Arg Ile Gln Ile His Lys Glu His Tyr Arg Lys Asn Gln Leu Leu
180 185 190

Pro Ile Glu Cys Ala Thr Thr Gln Phe His Ser Gly Ile Gln Leu Pro
195 200 205

Met Ala Met Gly Gly Asn Ser Ser Met Gln Glu Ala His Ser Met Ser
210 215 220

Trp Leu Pro Asp Asn Asp His Gln Gln Thr Ile Leu Pro Gly Asp Ser
225 230 235 240

Ser Phe Leu Pro His Arg Glu Met Asp Gly Ser Ile Pro Val Tyr Ser
245 250 255

Ser Cys Phe Phe Glu Ser Thr Lys Pro Glu Asp Gln Ile Cys Ser Asn
260 265 270

Pro Gly Gln Gln Phe Glu Gln Leu Glu Gln Gln Gly Asn Gly Cys Leu
275 280 285

Gly Leu Gln Gln Leu Gly Glu Glu Tyr Ser Tyr Pro Thr Pro Phe Gly
290 295 300

Thr Thr Leu Gly Met Glu Glu Asp Gln Glu Lys Lys Ile Lys Ser Glu
305 310 315 320

Met Glu Leu Asn Asn Leu Gln Gln Gln Gln Gln Gln Gln Gln Gln
325 330 335

Gln Gln Gln Asp Pro Ser Met Tyr Asp Pro Met Ala Asn Asn Asn Gly
340 345 350

Gly Cys Phe Gln Ile Pro His Asp Gln Ser Met Phe Val Asn Asp His
355 360 365

His His His His His His His His Gln Asn Trp Val Pro Asp Ser Met
370 375 380

Phe Gly Gln Thr Ser Tyr Asn Gln Val Cys Val Phe Thr Pro Pro Leu
385 390 395 400

Glu Leu Ser Arg

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Met Glu Arg Arg Thr
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aga cga gtg aag ttc aca gag aat cgt acg gtc aca aac gta gca gct 103
Arg Arg Val Lys Phe Thr Glu Asn Arg Thr Val Thr Asn Val Ala Ala
10 15 20

aca cca tct aac ggg tct ccg aga ctg gtc cgt atc act gtt act gat 151
Thr Pro Ser Asn Gly Ser Pro Arg Leu Val Arg Ile Thr Val Thr Asp
25 30 35

cct ttc gct act gac tcg tct agc gac gac gac gac aac aac aac gtc 199
Pro Phe Ala Thr Asp Ser Ser Ser Asp Asp Asp Asp Asn Asn Asn Val
40 45 50

acg gtg gtt cca aga gtg aaa cga tac gtg aag gag att aga ttc tgc	247
Thr Val Val Pro Arg Val Lys Arg Tyr Val Lys Glu Ile Arg Phe Cys	
55 60 65	
caa ggt gaa tct tct tcc tcc acc gcg gcg agg aaa ggt aag cac aag	295
Gln Gly Glu Ser Ser Ser Ser Thr Ala Ala Arg Lys Gly Lys His Lys	
70 75 80 85	
gag gag gaa agc gta gtg gtt gaa gat gac gtg tcg acg tcg gtg aag	343
Glu Glu Glu Ser Val Val Val Glu Asp Asp Val Ser Thr Ser Val Lys	
90 95 100	
cct aaa aag tac aga ggc gtg aga cag aga cct tgg gga aaa ttc gcg	391
Pro Lys Lys Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Phe Ala	
105 110 115	
gcg gag att aga gat ccg tcg agc cgt act ccg att tgg ctt ggg act	439
Ala Glu Ile Arg Asp Pro Ser Ser Arg Thr Arg Ile Trp Leu Gly Thr	
120 125 130	
ttt gtc acg gcg gag gaa gct gct ata gcg tac gat aga gcc gcg att	487
Phe Val Thr Ala Glu Glu Ala Ala Ile Ala Tyr Asp Arg Ala Ala Ile	
135 140 145	
cat ctc aaa gga cct aaa gcg ctc acg aat ttc cta act ccg ccg acg	535
His Leu Lys Gly Pro Lys Ala Leu Thr Asn Phe Leu Thr Pro Pro Thr	
150 155 160 165	
cca acg ccg gtt atc gat ctc caa acg gtt tcc gcc tgc gat tac ggt	583
Pro Thr Pro Val Ile Asp Leu Gln Thr Val Ser Ala Cys Asp Tyr Gly	
170 175 180	
aga gat tct ccg cag agc ctt cat tca ccg acc tct gtt cta aga ttc	631
Arg Asp Ser Arg Gln Ser Leu His Ser Pro Thr Ser Val Leu Arg Phe	
185 190 195	
aac gtc aac gag gaa aca gag cat gag att gaa gcg atc gag cta tct	679
Asn Val Asn Glu Glu Thr Glu His Glu Ile Glu Ala Ile Glu Leu Ser	
200 205 210	
ccg gag aga aag tcg acg gtt ata aaa gaa gaa gaa gaa tcg tcg gcg	727
Pro Glu Arg Lys Ser Thr Val Ile Lys Glu Glu Glu Glu Ser Ser Ala	
215 220 225	
ggg ttg gtg ttc ccg gat ccg tat ctg tta ccg gat tta tct ctc gcc	775
Gly Leu Val Phe Pro Asp Pro Tyr Leu Leu Pro Asp Leu Ser Leu Ala	
230 235 240 245	
ggc gaa tgt ttt tgg gat acc gaa att gcc cct gac ctt ttg ttt ctc	823
Gly Glu Cys Phe Trp Asp Thr Glu Ile Ala Pro Asp Leu Leu Phe Leu	
250 255 260	
gat gaa gaa acc aaa atc caa tca acg ttg tta cca aac aca gag gtt	871
Asp Glu Glu Thr Lys Ile Gln Ser Thr Leu Leu Pro Asn Thr Glu Val	
265 270 275	

tcg aaa caa gga gaa aac gaa act gaa gat ttc gag ttt ggt ttg att 919
Ser Lys Gln Gly Glu Asn Glu Thr Glu Asp Phe Glu Phe Gly Leu Ile
280 285 290

gat gat ttc gag tct tct cca tgg gat gtg gat cat ttc ttc gac cat 967
Asp Asp Phe Glu Ser Ser Pro Trp Asp Val Asp His Phe Phe Asp His
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His His His Ser Phe Asp
310 315

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Ile Thr Val Thr Asp Pro Phe Ala Thr Asp Ser Ser Ser Asp Asp Asp
35 40 45

Asp Asn Asn Asn Val Thr Val Val Pro Arg Val Lys Arg Tyr Val Lys
50 55 60

Glu Ile Arg Phe Cys Gln Gly Glu Ser Ser Ser Ser Thr Ala Ala Arg
65 70 75 80

Lys Gly Lys His Lys Glu Glu Glu Ser Val Val Val Glu Asp Asp Val
85 90 95

Ser Thr Ser Val Lys Pro Lys Lys Tyr Arg Gly Val Arg Gln Arg Pro
100 105 110

Trp Gly Lys Phe Ala Ala Glu Ile Arg Asp Pro Ser Ser Arg Thr Arg
115 120 125

Ile Trp Leu Gly Thr Phe Val Thr Ala Glu Glu Ala Ala Ile Ala Tyr
130 135 140

Asp Arg Ala Ala Ile His Leu Lys Gly Pro Lys Ala Leu Thr Asn Phe
145 150 155 160

Leu Thr Pro Pro Thr Pro Thr Pro Val Ile Asp Leu Gln Thr Val Ser
165 170 175

Ala Cys Asp Tyr Gly Arg Asp Ser Arg Gln Ser Leu His Ser Pro Thr
180 185 190

Ser Val Leu Arg Phe Asn Val Asn Glu Glu Thr Glu His Glu Ile Glu
195 200 205

Ala Ile Glu Leu Ser Pro Glu Arg Lys Ser Thr Val Ile Lys Glu Glu
210 215 220

Glu Glu Ser Ser Ala Gly Leu Val Phe Pro Asp Pro Tyr Leu Leu Pro
225 230 235 240

Asp Leu Ser Leu Ala Gly Glu Cys Phe Trp Asp Thr Glu Ile Ala Pro
245 250 255

Asp Leu Leu Phe Leu Asp Glu Glu Thr Lys Ile Gln Ser Thr Leu Leu
260 265 270

Pro Asn Thr Glu Val Ser Lys Gln Gly Glu Asn Glu Thr Glu Asp Phe
275 280 285

Glu Phe Gly Leu Ile Asp Asp Phe Glu Ser Ser Pro Trp Asp Val Asp
290 295 300

His Phe Phe Asp His His His His Ser Phe Asp
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attctctcaac attctctttc tctctgtataa atg gag aaa cca gtg ttt gca cca 174
Met Glu Lys Pro Val Phe Ala Pro
1 5
tgg cgt tcc gac caa gtt ttc cgg cca cgg gag aca cca tta gag cgg 222
Trp Arg Ser Asp Gln Val Phe Arg Pro Pro Glu Thr Pro Leu Glu Pro
10 15 20
atg gag ttt ctc tct cgc tcc tgg agc gta tca gct cac gaa gtc tcc 270
Met Glu Phe Leu Ser Arg Ser Trp Ser Val Ser Ala His Glu Val Ser
25 30 35 40

aac gct ctc act cct tct cag caa ctc ctc tca aaa gcc tca atc gaa Lys Ala Leu Thr Pro Ser Gln Gln Leu Leu Ser Lys Ala Ser Ile Glu	318
45	
aac acc acc gtc att ctc gaa gaa ccc atc gcc gcc gcc gag acc gaa Asn Thr Thr Val Ile Leu Glu Glu Pro Ile Ala Ala Gly Glu Thr Glu	366
60	
acg gag gac aac agc ttc gtc tcc gga aac cct ttc tcc ttc gct tgc Thr Glu Asp Asn Ser Phe Val Ser Gly Asn Pro Phe Ser Phe Ala Cys	414
75	
tca gaa act tct cag atg gtc atg gat cgt atc tta tct cag tct cag Ser Glu Thr Ser Gln Met Val Met Asp Arg Ile Leu Ser Gln Ser Gln	462
90	
gaa gtg tcg cca cga aca tct ggt cgg ctt tct cat agc agc ggt cct Glu Val Ser Pro Arg Thr Ser Gly Arg Leu Ser His Ser Ser Gly Pro	510
105	
ctc aat ggt tct tta acc gac agt cct ccg att tcg ccg cat caa gtc Leu Asn Gly Ser Leu Thr Asp Ser Pro Pro Ile Ser Pro His Gln Val	558
125	
gac gac att aag caa ttt tgc cga tca aac aac aat ttc aac tct caa Asp Asp Ile Lys Gln Phe Cys Arg Ser Asn Asn Asn Phe Asn Ser Gln	606
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tac cgt tca acg gga aca act ccg gga cct atc act gca aca act aca Tyr Arg Ser Thr Gly Thr Thr Pro Gly Pro Ile Thr Ala Thr Thr	654
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cag tcc aag aca gtt gga cgg tgg ttg aaa gac agg agg gag aaa aag Gln Ser Lys Thr Val Gly Arg Trp Leu Lys Asp Arg Arg Glu Lys Lys	702
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aag gaa gag atg aga gca cac aat gct cag ata cat gct gct gta tca Lys Glu Glu Met Arg Ala His Asn Ala Gln Ile His Ala Ala Val Ser	750
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gta gct ggt gtg gca gcc gcg gtg gct gct atc gcg gct gca act gct Val Ala Gly Val Ala Ala Ala Val Ala Ala Gln Ile Ala Ala Thr Ala	798
205	
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gct tcg tcg agt gct gga aaa gat gag aat atg gct aag acg gat atg Ala Ser Ser Ser Ala Gly Lys Asp Glu Asn Met Ala Lys Thr Asp Met	846
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gct gtg gct tct gct gca aca ctt gtg gct gct caa tgt gtg gaa gct Ala Val Ala Ser Ala Ala Thr Leu Val Ala Ala Gln Cys Val Glu Ala	894
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gct gaa gtt atg gga gct gag agg gat cat tta gct tcc gtt gtt agt Ala Glu Val Met Gly Ala Glu Arg Asp His Leu Ala Ser Val Val Ser	942
250	
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atg aag gag gtg tgg cac att gca tca gtt att cca atg gat aaa gga Met Lys Glu Val Trp His Ile Ala Ser Val Ile Pro Met Asp Lys Gly 300 305 310	1086
atc aat ctc gga ggt tgc agc aat gtt aat ggt aac ggg agc tat gtc Ile Asn Leu Gly Gly Cys Ser Asn Val Asn Gly Asn Gly Ser Tyr Val 315 320 325	1134
agc tca agc agc agt cat agt ggc gaa ttt cta gtt gag gat aat ttc Ser Ser Ser Ser Ser His Ser Gly Glu Phe Leu Val Glu Asp Asn Phe 330 335 340	1182
ttg gga cat tgc aat aga gaa tgg ctt gct cga ggt ggc caa ctt ctt Leu Gly His Cys Asn Arg Glu Trp Leu Ala Arg Gly Gly Gln Leu Leu 345 350 355 360	1230
aaa cgc acc cgc aaa ggt gat ctt cat tgg aaa ata gtt tca gtt tac Lys Arg Thr Arg Lys Gly Asp Leu His Trp Lys Ile Val Ser Val Tyr 365 370 375	1278
ata aac agg cta aat caa gtt ata ttg aag atg aag agc agg cat gta Ile Asn Arg Leu Asn Gln Val Ile Leu Lys Met Lys Ser Arg His Val 380 385 390	1326
gga ggg acc ttc acg aag aag aac aaa aat gtt gtg att gat gtg atc Gly Gly Thr Phe Thr Lys Lys Asn Lys Asn Val Val Ile Asp Val Ile 395 400 405	1374
aaa aac gtt caa gct tgg cca ggc cgc cat ttg ctg gaa gga gga gag Lys Asn Val Gln Ala Trp Pro Gly Arg His Leu Leu Glu Gly Gly Glu 410 415 420	1422
gat ttg aga tac ttt ggg tta aag acg gtt ccg cga ggg att gta gaa Asp Leu Arg Tyr Phe Gly Leu Lys Thr Val Pro Arg Gly Ile Val Glu 425 430 435 440	1470
ttt cag tgc aag agc cag aga gag tat gaa atg tgg aca caa ggt gtc Phe Gln Cys Lys Ser Gln Arg Glu Tyr Glu Met Trp Thr Gln Gly Val 445 450 455	1518
tca agg ctt att gct gtt gct gcc gag agg aat aac aga tat agg ata Ser Arg Leu Ile Ala Val Ala Ala Glu Arg Asn Asn Arg Tyr Arg Ile 460 465 470	1566
tga agggagtagt agttttaaga gttcagagct acctttttgag gggtgatatc	1619
taacttatgg ggccaaatta taacttgag aaagttaagg gtgttttctt tagagtaatg	1679
tctttttgta aggtatatag gattaaatgt ggcctctata agggtagcta gtgaacaaa	1739

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aaaa 1803

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Pro Pro Glu Thr Pro Leu Glu Pro Met Glu Phe Leu Ser Arg Ser Trp
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Ser Val Ser Ala His Glu Val Ser Lys Ala Leu Thr Pro Ser Gln Gln
35 40 45

Leu Leu Ser Lys Ala Ser Ile Glu Asn Thr Thr Val Ile Leu Glu Glu
50 55 60

Pro Ile Ala Ala Gly Glu Thr Glu Thr Glu Asp Asn Ser Phe Val Ser
65 70 75 80

Gly Asn Pro Phe Ser Phe Ala Cys Ser Glu Thr Ser Gln Met Val Met
85 90 95

Asp Arg Ile Leu Ser Gln Ser Gln Glu Val Ser Pro Arg Thr Ser Gly
100 105 110

Arg Leu Ser His Ser Ser Gly Pro Leu Asn Gly Ser Leu Thr Asp Ser
115 120 125

Pro Pro Ile Ser Pro His Gln Val Asp Asp Ile Lys Gln Phe Cys Arg
130 135 140

Ser Asn Asn Asn Phe Asn Ser Gln Tyr Arg Ser Thr Gly Thr Thr Pro
145 150 155 160

Gly Pro Ile Thr Ala Thr Thr Thr Gln Ser Lys Thr Val Gly Arg Trp
165 170 175

Leu Lys Asp Arg Arg Glu Lys Lys Lys Glu Glu Met Arg Ala His Asn
180 185 190

Ala Gln Ile His Ala Ala Val Ser Val Ala Gly Val Ala Ala Ala Val

195

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205

Ala Ala Ile Ala Ala Ala Thr Ala Ala Ser Ser Ser Ala Gly Lys Asp
210 215 220

Glu Asn Met Ala Lys Thr Asp Met Ala Val Ala Ser Ala Ala Thr Leu
225 230 235 240

Val Ala Ala Gln Cys Val Glu Ala Ala Glu Val Met Gly Ala Glu Arg
245 250 255

Asp His Leu Ala Ser Val Val Ser Ser Ala Val Asn Val Arg Ser Ala
260 265 270

Gly Asp Ile Met Thr Leu Thr Ala Gly Ala Ala Thr Ala Leu Arg Gly
275 280 285

Val Ala Thr Leu Lys Ala Arg Ala Met Lys Glu Val Trp His Ile Ala
290 295 300

Ser Val Ile Pro Met Asp Lys Gly Ile Asn Leu Gly Gly Cys Ser Asn
305 310 315 320

Val Asn Gly Asn Gly Ser Tyr Val Ser Ser Ser Ser His Ser Gly
325 330 335

Glu Phe Leu Val Glu Asp Asn Phe Leu Gly His Cys Asn Arg Glu Trp
340 345 350

Leu Ala Arg Gly Gly Gln Leu Leu Lys Arg Thr Arg Lys Gly Asp Leu
355 360 365

His Trp Lys Ile Val Ser Val Tyr Ile Asn Arg Leu Asn Gln Val Ile
370 375 380

Leu Lys Met Lys Ser Arg His Val Gly Gly Thr Phe Thr Lys Lys Asn
385 390 395 400

Lys Asn Val Val Ile Asp Val Ile Lys Asn Val Gln Ala Trp Pro Gly
405 410 415

Arg His Leu Leu Glu Gly Gly Glu Asp Leu Arg Tyr Phe Gly Leu Lys
420 425 430

Thr Val Pro Arg Gly Ile Val Glu Phe Gln Cys Lys Ser Gln Arg Glu
435 440 445

Tyr Glu Met Trp Thr Gln Gly Val Ser Arg Leu Ile Ala Val Ala Ala
450 455 460

Glu Arg Asn Asn Arg Tyr Arg Ile
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cct cct ccg ccg cca cct att ttc cac cgt gcg agc tct acg ggg acg 96
Pro Pro Pro Pro Pro Pro Ile Phe His Arg Ala Ser Ser Thr Gly Thr
20 25 30
agt ttt ccg atc tta gcc gtc gcg gtg atc gga atc tta gcc aca gca 144
Ser Phe Pro Ile Leu Ala Val Ala Val Ile Gly Ile Leu Ala Thr Ala
35 40 45
ttt tta ctt gta agc tat tat gtt ttt gtt atc aaa tgt tgt ctc aac 192
Phe Leu Leu Val Ser Tyr Tyr Val Phe Val Ile Lys Cys Cys Leu Asn
50 55 60
tgg cac cga atc gac att ctt ggt cga ttc tgg tta tct cga agg cga 240
Trp His Arg Ile Asp Ile Leu Gly Arg Phe Ser Leu Ser Arg Arg Arg
65 70 75 80
cgc aac gac caa gat cct tta atg gtt tac tct cca gag ctt aga agc 288
Arg Asn Asp Gln Asp Pro Leu Met Val Tyr Ser Pro Glu Leu Arg Ser
85 90 95
cgc ggt ctt gat gaa tcc gtc att aga gca atc cca atc ttt aag ttc 336
Arg Gly Leu Asp Glu Ser Val Ile Arg Ala Ile Pro Ile Phe Lys Phe
100 105 110
aag aag aga tac gac caa aac gac ggc gtt ttt aca gga gaa gga gaa 384
Lys Lys Arg Tyr Asp Gln Asn Asp Gly Val Phe Thr Gly Glu Gly Glu
115 120 125
gaa gaa gaa gag aag aga tct caa gaa tgc tct gtt tgt ttg agt gag 432
Glu Glu Glu Glu Lys Arg Ser Gln Glu Cys Ser Val Cys Leu Ser Glu
130 135 140
ttt caa gat gag gag aag ctg agg att atc cca aat tgt tct cat ttg 480
Phe Gln Asp Glu Glu Lys Leu Arg Ile Ile Pro Asn Cys Ser His Leu
145 150 155 160

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Phe His Ile Asp Cys Ile Asp Val Trp Leu Gln Asn Asn Ala Asn Cys	
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Pro Leu Cys Arg Thr Arg Val Ser Cys Asp Thr Ser Phe Pro Pro Asp	
180 185 190	
cgg gtt tct gcg ccg agc act tct ccc gag aat ctg gtc atg tta aga	624
Arg Val Ser Ala Pro Ser Thr Ser Pro Glu Asn Leu Val Met Leu Arg	
195 200 205	
ggg gag aac gag tat gtg gtc att gag ctg ggc agt agc atc ggt agt	672
Gly Glu Asn Glu Tyr Val Val Ile Glu Leu Gly Ser Ser Ile Gly Ser	
210 215 220	
gac aga gat agt cca aga cac gga agg tta ctt acg gga caa gaa agg	720
Asp Arg Asp Ser Pro Arg His Gly Arg Leu Thr Gly Gln Glu Arg	
225 230 235 240	
tca aat tca ggt tat cta ctg aac gaa aac acc caa aat tcg atc agt	768
Ser Asn Ser Gly Tyr Leu Leu Asn Glu Asn Thr Gln Asn Ser Ile Ser	
245 250 255	
cca tct ccg aag aag ctt gac cgc gga ggg ctt cca aga aaa ttc cga	816
Pro Ser Pro Lys Lys Leu Asp Arg Gly Gly Leu Pro Arg Lys Phe Arg	
260 265 270	
aag ctt cac aag atg acg agt atg gga gac gaa tgc atc gac ata aga	864
Lys Leu His Lys Met Thr Ser Met Gly Asp Glu Cys Ile Asp Ile Arg	
275 280 285	
aga ggt aaa gac gaa cag ttc ggt agt att cag ccc att aga aga tca	912
Arg Gly Lys Asp Glu Gln Phe Gly Ser Ile Gln Pro Ile Arg Arg Ser	
290 295 300	
atc tca atg gat tca tcg gcg gat aga cag ctt tac ttg gcg gtt caa	960
Ile Ser Met Asp Ser Ser Ala Asp Arg Gln Leu Tyr Leu Ala Val Gln	
305 310 315 320	
gag gcg att ccg aaa aac cgc gaa gtt ctg gtg gtt gga gac gga gga	1008
Glu Ala Ile Arg Lys Asn Arg Glu Val Leu Val Val Gly Asp Gly Gly	
325 330 335	
gga tgt agc agt agt agt ggc aat gtt agt aat tcc aaa gtg aag aga	1056
Gly Cys Ser Ser Ser Ser Gly Asn Val Ser Asn Ser Lys Val Lys Arg	
340 345 350	
tct ttc ttc tct ttt ggg agc agt aga cgt tct aga agt tcc tct aaa	1104
Ser Phe Phe Ser Phe Gly Ser Ser Arg Arg Ser Arg Ser Ser Ser Lys	
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Leu Pro Leu Tyr Phe Glu Pro	
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Pro Pro Pro Pro Pro Pro Ile Phe His Arg Ala Ser Ser Thr Gly Thr
20 25 30

Ser Phe Pro Ile Leu Ala Val Ala Val Ile Gly Ile Leu Ala Thr Ala
35 40 45

Phe Leu Leu Val Ser Tyr Tyr Val Phe Val Ile Lys Cys Cys Leu Asn
50 55 60

Trp His Arg Ile Asp Ile Leu Gly Arg Phe Ser Leu Ser Arg Arg Arg
65 70 75 80

Arg Asn Asp Gln Asp Pro Leu Met Val Tyr Ser Pro Glu Leu Arg Ser
85 90 95

Arg Gly Leu Asp Glu Ser Val Ile Arg Ala Ile Pro Ile Phe Lys Phe
100 105 110

Lys Lys Arg Tyr Asp Gln Asn Asp Gly Val Phe Thr Gly Glu Gly Glu
115 120 125

Glu Glu Glu Glu Lys Arg Ser Gln Glu Cys Ser Val Cys Leu Ser Glu
130 135 140

Phe Gln Asp Glu Glu Lys Leu Arg Ile Ile Pro Asn Cys Ser His Leu
145 150 155 160

Phe His Ile Asp Cys Ile Asp Val Trp Leu Gln Asn Asn Ala Asn Cys
165 170 175

Pro Leu Cys Arg Thr Arg Val Ser Cys Asp Thr Ser Phe Pro Pro Asp
180 185 190

Arg Val Ser Ala Pro Ser Thr Ser Pro Glu Asn Leu Val Met Leu Arg
195 200 205

Gly Glu Asn Glu Tyr Val Val Ile Glu Leu Gly Ser Ser Ile Gly Ser
210 215 220

Asp Arg Asp Ser Pro Arg His Gly Arg Leu Leu Thr Gly Gln Glu Arg
225 230 235 240

Ser Asn Ser Gly Tyr Leu Leu Asn Glu Asn Thr Gln Asn Ser Ile Ser
245 250 255

Pro Ser Pro Lys Lys Leu Asp Arg Gly Gly Leu Pro Arg Lys Phe Arg
260 265 270

Lys Leu His Lys Met Thr Ser Met Gly Asp Glu Cys Ile Asp Ile Arg
275 280 285

Arg Gly Lys Asp Glu Gln Phe Gly Ser Ile Gln Pro Ile Arg Arg Ser
290 295 300

Ile Ser Met Asp Ser Ser Ala Asp Arg Gln Leu Tyr Leu Ala Val Gln
305 310 315 320

Glu Ala Ile Arg Lys Asn Arg Glu Val Leu Val Val Gly Asp Gly Gly
325 330 335

Gly Cys Ser Ser Ser Ser Gly Asn Val Ser Asn Ser Lys Val Lys Arg
340 345 350

Ser Phe Phe Ser Phe Gly Ser Ser Arg Arg Ser Arg Ser Ser Ser Lys
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Leu Pro Leu Tyr Phe Glu Pro
370 375

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Met Lys Trp Val Phe Pro Glu Ile Lys Thr Thr Gln Asn Phe Leu Ser
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cct tca tca ctt cca caa gaa cca ccg tta tct ctc cgc tcc agc gca 96
Pro Ser Ser Leu Pro Gln Glu Pro Pro Leu Ser Leu Arg Ser Ser Ala
20 25 30

aac ttc gat cta aac agc aaa atc agt cca agt att ctc ctc ata atc 144
Asn Phe Asp Leu Asn Ser Lys Ile Ser Pro Ser Ile Leu Leu Ile Ile
35 40 45

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ata atc ctc tca atc atc ttc ttc atc tcc ggt ctc ctt cat ctc tta	192
Ile Ile Leu Ser Ile Ile Phe Phe Ile Ser Gly Leu Leu His Leu Leu	
50 55 60	
gtc aga ttc ctc ctc aca cca tgc agc aga gac aga gaa gat tac ttc	240
Val Arg Phe Leu Leu Thr Pro Ser Ser Arg Asp Arg Glu Asp Tyr Phe	
65 70 75 80	
gac aac gtc act gct ctt caa ggc cag ctt caa cag ctt ttt cat ctc	288
Asp Asn Val Thr 85 Leu Gln Gly Gln Leu Gln Leu Phe His Leu	
90 95	
cat gat tct gga gtt gac caa tcc ttc atc gac acg tta cct gtt ttc	336
His Asp Ser Gly Val Asp Gln Ser Phe Ile Asp Thr Leu Pro Val Phe	
100 105 110	
cat tac aaa tcc ata atc ggt ctc aag aac tat cct ttt gat tgt gca	384
His Tyr Lys Ser Ile Ile Gly Leu Lys Asn Tyr Pro Phe Asp Cys Ala	
115 120 125	
gtt tgt ctt tgt gag ttc gaa aca gag gat aag ctc agg ctc tta cct	432
Val Cys Leu Cys Glu Phe Glu Thr Glu Asp Lys Leu Arg Leu Leu Pro	
130 135 140	
aaa tgc agc cac gcc ttt cac atg gat tgt atc gat act tgg ctt cta	480
Lys Cys Ser His Ala Phe His Met Asp Cys Ile Asp Thr Trp Leu Leu	
145 150 155 160	
tct cac tct act tgt cct ttg tgt aga tcc agt ctc ctc tct gat ctc	528
Ser His Ser Thr Cys Pro Phe Leu Cys Arg Ser Ser Leu Leu Ser Asp Leu	
165 170 175	
tct tgc cac caa gat cct cgt tct tct ttc ctc ctt gtg ctc gag tct	576
Ser Ser His Gln Asp Pro Arg Ser Ser Phe Leu Leu Val Leu Glu Ser	
180 185 190	
gcg agt gat cat agc tgc aga gag att gga gga gat aga gac agt gca	624
Ala Ser Asp His Ser Ser Arg Glu Ile Gly Gly Asp Arg Asp Ser Ala	
195 200 205	
gct tgt gtg gct gca aat gat gat att gat gtg tct agt gct cat ctt	672
Ala Cys Val Ala Ala Asn Asp Asp Ile Asp Val Ser Ser Ala His Leu	
210 215 220	
ggg ttg gtc gga aac aat gat ctt gga tca acc agg ata gat tgc ggt	720
Gly Leu Val Gly Asn Asn Asp Leu Gly Ser Thr Arg Ile Asp Ser Ser Gly	
225 230 235 240	
cac gga gat cag tac ctg gat ggt gaa ttg ggt ggt tgc gtt gga aag	768
His Gly Asp Gln Tyr Leu Asp Gly Glu Leu Gly Gly Ser Val Gly Lys	
245 250 255	
gtt gtt cct ttt tca gtt aag cta ggg aag ttt agg aat ata gat att	816
Val Val Pro Phe Ser Val Lys Leu Gly Lys Phe Arg Asn Ile Asp Ile	
260 265 270	

ggt gaa gga act agt agc aac aac aac att ggt aat agt agt agt tta 864
Gly Glu Gly Thr Ser Ser Asn Asn Asn Ile Gly Asn Ser Ser Ser Leu
275 280 285

gat gag agg agg tgt ttc tca atg gga tca tat gag tat ata atg gat 912
Asp Glu Arg Arg Cys Phe Ser Met Gly Ser Tyr Glu Tyr Ile Met Asp
290 295 300

gaa gaa acg act ctt aag gtt cat gtt tca acc aag aaa caa tca agc 960
Glu Glu Thr Thr Leu Lys Val His Val Ser Thr Lys Lys Gln Ser Ser
305 310 315 320

aag aac cgt ggc ttg ccc ggt cat agg aca gcg atg tcc gaa tgc ggg 1008
Lys Asn Arg Gly Leu Pro Gly His Arg Thr Ala Met Ser Glu Cys Gly
325 330 335

ttt gat cca aca ggg aga ttg aaa ttc agt ggg agt gga tgc atg agg 1056
Phe Asp Pro Thr Gly Arg Leu Lys Phe Ser Gly Ser Gly Ser Met Arg
340 345 350

ata gtg gaa gaa gcg gcc gag aag aat gta gtg gaa aga gag agc ttt 1104
Ile Val Glu Glu Ala Ala Glu Lys Asn Val Val Glu Arg Glu Ser Phe
355 360 365

tcg gta tcg aaa ata tgg cta agg ggg aag aag gag aag cat agt aaa 1152
Ser Val Ser Lys Ile Trp Leu Arg Gly Lys Lys Glu Lys His Ser Lys
370 375 380

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Val Gln Gly Lys Glu Asp Ser Ser Leu Val Ser Ser Ser Ser Gly Arg
385 390 395 400

gca ttc tct ttc agg tta tcg aac cag cgg aac cat ccc gat gcg atg 1248
Ala Phe Ser Phe Arg Leu Ser Asn Gln Arg Asn His Pro Asp Ala Met
405 410 415

atc gaa agt ggt tgc gaa gaa gat aat caa aag tgc gaa aac tcg gag 1296
Ile Glu Ser Gly Cys Glu Glu Asp Asn Gln Lys Cys Glu Asn Ser Glu
420 425 430

tct ttg gag act aaa aca cca tct ttt gct agg agg act atg ctt tgg 1344
Ser Leu Glu Thr Lys Thr Pro Ser Phe Ala Arg Arg Thr Met Leu Trp
435 440 445

ctt gca ggg aga caa aac aag gtt gtt cat tct tct tct tca act aat 1392
Leu Ala Gly Arg Gln Asn Lys Val Val His Ser Ser Ser Ser Thr Asn
450 455 460

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Val
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35 40 45

Ile Ile Leu Ser Ile Ile Phe Phe Ile Ser Gly Leu Leu His Leu Leu
50 55 60

Val Arg Phe Leu Leu Thr Pro Ser Ser Arg Asp Arg Glu Asp Tyr Phe
65 70 75 80

Asp Asn Val Thr Ala Leu Gln Gly Gln Leu Gln Gln Leu Phe His Leu
85 90 95

His Asp Ser Gly Val Asp Gln Ser Phe Ile Asp Thr Leu Pro Val Phe
100 105 110

His Tyr Lys Ser Ile Ile Gly Leu Lys Asn Tyr Pro Phe Asp Cys Ala
115 120 125

Val Cys Leu Cys Glu Phe Glu Thr Glu Asp Lys Leu Arg Leu Leu Pro
130 135 140

Lys Cys Ser His Ala Phe His Met Asp Cys Ile Asp Thr Trp Leu Leu
145 150 155 160

Ser His Ser Thr Cys Pro Leu Cys Arg Ser Ser Leu Leu Ser Asp Leu
165 170 175

Ser Ser His Gln Asp Pro Arg Ser Ser Phe Leu Leu Val Leu Glu Ser
180 185 190

Ala Ser Asp His Ser Ser Arg Glu Ile Gly Gly Asp Arg Asp Ser Ala
195 200 205

Ala Cys Val Ala Ala Asn Asp Asp Ile Asp Val Ser Ser Ala His Leu
210 215 220

Gly Leu Val Gly Asn Asn Asp Leu Gly Ser Thr Arg Ile Asp Ser Gly
225 230 235 240

His Gly Asp Gln Tyr Leu Asp Gly Glu Leu Gly Gly Ser Val Gly Lys
245 250 255

Val Val Pro Phe Ser Val Lys Leu Gly Lys Phe Arg Asn Ile Asp Ile
260 265 270

Gly Glu Gly Thr Ser Ser Asn Asn Asn Ile Gly Asn Ser Ser Ser Leu
275 280 285

Asp Glu Arg Arg Cys Phe Ser Met Gly Ser Tyr Glu Tyr Ile Met Asp
290 295 300

Glu Glu Thr Thr Leu Lys Val His Val Ser Thr Lys Lys Gln Ser Ser
305 310 315 320

Lys Asn Arg Gly Leu Pro Gly His Arg Thr Ala Met Ser Glu Cys Gly
325 330 335

Phe Asp Pro Thr Gly Arg Leu Lys Phe Ser Gly Ser Gly Ser Met Arg
340 345 350

Ile Val Glu Glu Ala Ala Glu Lys Asn Val Val Glu Arg Glu Ser Phe
355 360 365

Ser Val Ser Lys Ile Trp Leu Arg Gly Lys Lys Glu Lys His Ser Lys
370 375 380

Val Gln Gly Lys Glu Asp Ser Ser Leu Val Ser Ser Ser Ser Gly Arg
385 390 395 400

Ala Phe Ser Phe Arg Leu Ser Asn Gln Arg Asn His Pro Asp Ala Met
405 410 415

Ile Glu Ser Gly Cys Glu Glu Asp Asn Gln Lys Cys Glu Asn Ser Glu
420 425 430

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Val
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ttg aaa gac aag gct aca gtc tcc aac ctt gtt gaa gaa gaa atg gag 161
Leu Lys Asp Lys Ala Thr Val Ser Asn Leu Val Glu Glu Glu Met Glu
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Asn Gly Met Asp Gly Glu Glu Glu Asp Gly Gly Asp Glu Asp Lys Arg
30 35 40

aag aag gtg atg gaa aga gtt aga ggt cct agc act gac cgt gtt cca 257
Lys Lys Val Met Glu Arg Val Arg Gly Pro Ser Thr Asp Arg Val Pro
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tgc cga ctg tgc cag gtc gat agg tgc act gtt aat ttg act gag gcc 305
Ser Arg Leu Cys Gln Val Asp Arg Cys Thr Val Asn Leu Thr Glu Ala
60 65 70 75

aag cag tat tac cgc aga cac aga gta tgt gaa gta cat gca aag gca 353
Lys Gln Tyr Tyr Arg Arg His Arg Val Cys Glu Val His Ala Lys Ala
80 85 90

tct gct gcg act gtt gca ggg gtc agg caa cgc ttt tgt caa caa tgc 401
Ser Ala Ala Thr Val Ala Gly Val Arg Gln Arg Phe Cys Gln Gln Cys
95 100 105

agc agg ttt cat gag cta cca gag ttt gat gaa gct aaa aga agc tgc 449
Ser Arg Phe His Glu Leu Pro Glu Phe Asp Glu Ala Lys Arg Ser Cys
110 115 120

agg agg cgc tta gct gga cac aat gag agg agg agg aag atc tct ggt 497
Arg Arg Arg Leu Ala Gly His Asn Glu Arg Arg Arg Lys Ile Ser Gly
125 130 135

gac agt ttt gga gaa ggg tca ggc cgg aga ggg ttt agc ggt caa ctg 545
Asp Ser Phe Gly Glu Gly Ser Gly Arg Arg Gly Phe Ser Gly Gln Leu
140 145 150 155

atc cag act caa gaa aga aac agg gta gac agg aaa ctt cct atg acc 593
Ile Gln Thr Gln Glu Arg Asn Arg Val Asp Arg Lys Leu Pro Met Thr
160 165 170

aac tca tca ttc aag cga cca cag atc aga taa accctccgcg tctctctctt 646
Asn Ser Ser Phe Lys Arg Pro Gln Ile Arg
175 180

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20 25 30

Glu Glu Glu Asp Gly Gly Asp Glu Asp Lys Arg Lys Lys Val Met Glu
35 40 45

Arg Val Arg Gly Pro Ser Thr Asp Arg Val Pro Ser Arg Leu Cys Gln
50 55 60

Val Asp Arg Cys Thr Val Asn Leu Thr Glu Ala Lys Gln Tyr Tyr Arg
65 70 75 80

Arg His Arg Val Cys Glu Val His Ala Lys Ala Ser Ala Ala Thr Val
85 90 95

Ala Gly Val Arg Gln Arg Phe Cys Gln Gln Cys Ser Arg Phe His Glu
100 105 110

Leu Pro Glu Phe Asp Glu Ala Lys Arg Ser Cys Arg Arg Leu Ala
115 120 125

Gly His Asn Glu Arg Arg Arg Lys Ile Ser Gly Asp Ser Phe Gly Glu
130 135 140

Gly Ser Gly Arg Arg Gly Phe Ser Gly Gln Leu Ile Gln Thr Gln Glu
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gaa gat agt ctc ttg agg cag tgt att ggt aag tat gga gaa ggc aaa      96
Glu Asp Ser Leu Leu Arg Gln Cys Ile Gly Lys Tyr Gly Glu Gly Lys
20          25          30

tgg cat caa gtt cct tta aga gct ggg cta aat cgg tgc agg aaa agt      144
Trp His Gln Val Pro Leu Arg Ala Gly Leu Asn Arg Cys Arg Lys Ser
35          40          45

tgt aga cta aga tgg tta aac tat ttg aag cca agt atc aag aga gga      192
Cys Arg Leu Arg Trp Leu Asn Tyr Leu Lys Pro Ser Ile Lys Arg Gly
50          55          60

aaa ttt agt tct gat gaa gtt gat ctt ctt ctt cgt ctt cat aag ctt      240
Lys Phe Ser Ser Asp Glu Val Asp Leu Leu Leu Arg Leu His Lys Leu
65          70          75          80

cta gga aat agg tgg tcc ttg att gct ggt cga tta cct ggt cgg acc      288
Leu Gly Asn Arg Trp Ser Leu Ile Ala Gly Arg Leu Pro Gly Arg Thr
85          90          95

gct aat gat gtc aag aac tac tgg aac acc cat ctg agt aag aag cat      336
Ala Asn Asp Val Lys Asn Tyr Trp Asn Thr His Leu Ser Lys Lys His
100         105         110

gaa ccg tgt tgt aaa act aag ata aaa agg ata aat att ata acc cct      384
Glu Pro Cys Cys Lys Thr Lys Ile Lys Arg Ile Asn Ile Ile Thr Pro
115         120         125

cct aat aca ccg gcc caa aaa gtt tgt gaa aat agt atc aca tgt aac      432
Pro Asn Thr Pro Ala Gln Lys Val Cys Glu Asn Ser Ile Thr Cys Asn
130         135         140

aaa gat gat gag aaa gat gat ttt gtg gat aat ttt atg gtt gga gat      480
Lys Asp Asp Glu Lys Asp Asp Phe Val Asp Asn Phe Met Val Gly Asp
145         150         155         160

aat ata tgg ttg gag cgt ttg cta gac gag ggc caa gag gta gat gtg      528
Asn Ile Trp Leu Glu Arg Leu Leu Asp Glu Gly Gln Glu Val Asp Val
165         170         175

ctg gtt aca gaa gcg gcg gca aca gaa aag gag ggc act ttg gcg ttt      576
Leu Val Thr Glu Ala Ala Ala Thr Glu Lys Glu Gly Thr Leu Ala Phe
180         185         190

gac gtt gag caa ctt tgg aat ttg ttc gat gga gag act gtg atc ttt      624
Asp Val Glu Gln Leu Trp Asn Leu Phe Asp Gly Glu Thr Val Ile Phe

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195 200 205
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 35 40 45

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 Lys Phe Ser Ser Asp Glu Val Asp Leu Leu Leu Arg Leu His Lys Leu
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 Leu Gly Asn Arg Trp Ser Leu Ile Ala Gly Arg Leu Pro Gly Arg Thr
 85 90 95

 Ala Asn Asp Val Lys Asn Tyr Trp Asn Thr His Leu Ser Lys Lys His
 100 105 110

 Glu Pro Cys Cys Lys Thr Lys Ile Lys Arg Ile Asn Ile Ile Thr Pro
 115 120 125

 Pro Asn Thr Pro Ala Gln Lys Val Cys Glu Asn Ser Ile Thr Cys Asn
 130 135 140

 Lys Asp Asp Glu Lys Asp Asp Phe Val Asp Asn Phe Met Val Gly Asp
 145 150 155 160

 Asn Ile Trp Leu Glu Arg Leu Leu Asp Glu Gly Gln Glu Val Asp Val
 165 170 175

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Glu Asp Ile Leu Leu Arg Gln Cys Ile Asp Lys Tyr Gly Glu Gly Lys
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tgg cat cga gtt cct tta aga act ggt ctc aat cgg tgc cga aag agt 144
Trp His Arg Val Pro Leu Arg Thr Gly Leu Asn Arg Cys Arg Lys Ser
35 40 45
tgt aga ctt aga tgg ttg aat tat ttg aag cca agt att aag aga gga 192
Cys Arg Leu Arg Trp Leu Asn Tyr Leu Lys Pro Ser Ile Lys Arg Gly
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aaa ctc tgc tcc gat gaa gtt gat ctt gtt ctt cgc ctt cat aaa ctt 240
Lys Leu Cys Ser Asp Glu Val Asp Leu Val Leu Arg Leu His Lys Leu
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Leu Gly Asn Arg Trp Ser Leu Ile Ala Gly Arg Leu Pro Gly Arg Thr
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gct aat gat gtc aag aat tac tgg aac act cat ttg agt aag aag cac 336
Ala Asn Asp Val Lys Asn Tyr Trp Asn Thr His Leu Ser Lys Lys His
100 105 110
gat gaa cga tgc tgt aag acg aag atg ata aac aaa aac att act tct 384
Asp Glu Arg Cys Cys Lys Thr Lys Met Ile Asn Lys Asn Ile Thr Ser
115 120 125
cat cct act tca tcg gcc caa aaa atc gat gtt tta aag cct cgg cct 432
His Pro Thr Ser Ser Ala Gln Lys Ile Asp Val Leu Lys Pro Arg Pro
130 135 140
cga tcc ttc tcc gat aaa aat agt tgc aac gat gtc aat atc ttg cca 480
Arg Ser Phe Ser Asp Lys Asn Ser Cys Asn Asp Val Asn Ile Leu Pro
145 150 155 160
aaa gtt gac gtt gtt cct tta cat ctt gga ctc aac aac aat tat gtt 528

Lys Val Asp Val Val Pro Leu His Leu Gly Leu Asn Asn Asn Tyr Val	
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Cys Glu Ser Ser Ile Thr Cys Asn Lys Asp Glu Gln Lys Asp Lys Leu	
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Ile Asn Ile Asn Leu Leu Asp Gly Asp Asn Met Trp Trp Glu Ser Leu	
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Val Thr Leu Pro Leu Asp Phe Glu Gln Ile Trp Ala Arg Phe Asp Glu	
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His Pro Thr Ser Ser Ala Gln Lys Ile Asp Val Leu Lys Pro Arg Pro
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Cys Glu Ser Ser Ile Thr Cys Asn Lys Asp Glu Gln Lys Asp Lys Leu
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Leu Glu Ala Asp Val Leu Gly Pro Glu Ala Thr Glu Thr Ala Lys Gly
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atg aat tac att gct act aat gga gaa ggt cgc tgg aac tct ctt tct 144
Met Asn Tyr Ile Ala Thr Asn Gly Glu Gly Arg Trp Asn Ser Leu Ser
35 40 45

cgt tgc gcc ggc ctc caa cgc acc ggt aaa agc tgt aga cta agg tgg 192
Arg Cys Ala Gly Leu Gln Arg Thr Gly Lys Ser Cys Arg Leu Arg Trp
50 55 60

tta aac tat ctc cgc cct gac gtc cgc cgt gga aac att aca ctt gaa 240
Leu Asn Tyr Leu Arg Pro Asp Val Arg Arg Gly Asn Ile Thr Leu Glu
65 70 75 80

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85 90 95	
tca aaa atc gca caa tat tta ccg gga aga acg gac aac gag atc aag Ser Lys Ile Ala Gln Tyr Leu Pro Gly Arg Thr Asp Asn Glu Ile Lys	336
100 105 110	
aac tac tgg agg acg cgg gtg caa aag cat gcg aaa cag ttg aaa tgt Asn Tyr Trp Arg Thr Arg Val Gln Lys His Ala Lys Gln Leu Lys Cys	384
115 120 125	
gat gtg aat agc caa caa ttc aaa gac aca atg aag tac ttg tgg atg Asp Val Asn Ser Gln Gln Phe Lys Asp Thr Met Lys Tyr Leu Trp Met	432
130 135 140	
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145 150 155 160	
gca gcc acc acc aca acc acc acc acc aca gga tca gcc gcc acg tca Ala Ala Thr Thr Thr Thr Thr Thr Thr Thr Gly Ser Ala Gly Thr Ser	528
165 170 175	
tct tgc atc aca acc tct aac aat caa ttc atg aat tac gac tac aac Ser Cys Ile Thr Thr Ser Asn Asn Phe Met Asn Tyr Asp Tyr Asn	576
180 185 190	
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195 200 205	
atc acg cct gaa aat tcc agc gtg gca gtg tct ccg gcg tca gac tta Ile Thr Pro Glu Asn Ser Ser Val Ala Val Ser Pro Ala Ser Asp Leu	672
210 215 220	
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225 230 235 240	
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245 250 255	
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260 265 270	
cta acg gct atg caa gag cag agt aac ctc agc tgg ttt gaa aac att Leu Thr Ala Met Gln Glu Gln Ser Asn Leu Ser Trp Phe Glu Asn Ile	864
275 280 285	
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290 295 300	
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Arg Cys Ala Gly Leu Gln Arg Thr Gly Lys Ser Cys Arg Leu Arg Trp
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Leu Asn Tyr Leu Arg Pro Asp Val Arg Arg Gly Asn Ile Thr Leu Glu
65 70 75 80

Glu Gln Leu Leu Ile Leu Glu Leu His Ser Arg Trp Gly Asn Arg Trp
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Ser Lys Ile Ala Gln Tyr Leu Pro Gly Arg Thr Asp Asn Glu Ile Lys
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Asn Tyr Trp Arg Thr Arg Val Gln Lys His Ala Lys Gln Leu Lys Cys
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Asp Val Asn Ser Gln Gln Phe Lys Asp Thr Met Lys Tyr Leu Trp Met
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Pro Arg Leu Val Glu Arg Ile Gln Ser Ala Ser Ala Ser Ser Ala Ala
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Ala Ala Thr Thr Thr Thr Thr Thr Thr Gly Ser Ala Gly Thr Ser
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Ser Cys Ile Thr Thr Ser Asn Asn Gln Phe Met Asn Tyr Asp Tyr Asn
180 185 190

Asn Asn Asn Met Gly Gln Gln Phe Gly Val Met Ser Asn Asn Asp Tyr
195 200 205

Ile Thr Pro Glu Asn Ser Ser Val Ala Val Ser Pro Ala Ser Asp Leu
210 215 220

Thr Glu Tyr Tyr Ser Ala Pro Asn Pro Asn Pro Glu Tyr Tyr Ser Gly
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Leu Leu Pro Asp Asn Tyr Phe Asp Tyr Ser Gly Leu Leu Asp Glu Asp
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Leu Thr Ala Met Gln Glu Gln Ser Asn Leu Ser Trp Phe Glu Asn Ile
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Asn Gly Ala Ala Ser Ser Ser Asp Ser Leu Trp Asn Ile Gly Glu Thr
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Pro Met Glu Gly Leu Gln Glu Ala Gly Pro Ser Pro Phe Leu Thr Lys
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acg ttc gag atg gtt ggt gat cca aac aca aac cac att gtg tct tgg 144
Thr Phe Glu Met Val Gly Asp Pro Asn Thr Asn His Ile Val Ser Trp
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aac agg gga ggc atc agt ttt gtc gtg tgg gat cca cat tcc ttc tcg 192
Asn Arg Gly Gly Ile Ser Phe Val Val Trp Asp Pro His Ser Phe Ser
50 55 60

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85 90 95	
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Trp Glu Phe Met Asn Glu Gly Phe Leu Met Gly Gln Arg Asp Leu Leu	
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aaa agc atc aag cga cga acc tcc tct tct tcc cct cct tcg ctt aac	384
Lys Ser Ile Lys Arg Arg Thr Ser Ser Ser Pro Ser Ser Leu Asn	
115 120 125	
tac tct cag tct cag ccc gag gct cat gac cca gcc gtc gag ctt ccg	432
Tyr Ser Gln Ser Gln Pro Glu Ala His Asp Pro Gly Val Glu Leu Pro	
130 135 140	
cag ctc cga gaa gag agg cat gtc cta atg atg gag atc tcg acg ctc	480
Gln Leu Arg Glu Glu Arg His Val Leu Met Met Glu Ile Ser Thr Leu	
145 150 155 160	
aga cag gag gag caa aga gcg aga ggc tac gtc caa gcc atg gag cag	528
Arg Gln Glu Glu Gln Arg Ala Arg Gly Tyr Val Gln Ala Met Glu Gln	
165 170 175	
agg att aat gga gca gag aag aaa cag agg cat atg atg tcc ttc ttg	576
Arg Ile Asn Gly Ala Glu Lys Lys Gln Arg His Met Met Ser Phe Leu	
180 185 190	
agg cgt gcg gtg gag aat cct tcc ctt ctg cag cag att ttc gag cag	624
Arg Arg Ala Val Glu Asn Pro Ser Leu Leu Gln Gln Ile Phe Glu Gln	
195 200 205	
aag aga gac cga gag gag gcc gcg atg att gat cag gct gcc ttg atc	672
Lys Arg Asp Arg Glu Glu Ala Ala Met Ile Asp Gln Ala Gly Leu Ile	
210 215 220	
aaa atg gaa gag gtg gag cac ctg tcg gag ctg gag gct ctg gcg ctt	720
Lys Met Glu Glu Val Glu His Leu Ser Glu Glu Ala Leu Ala Leu	
225 230 235 240	
gag atg caa gga tat gga cgg caa cgg act gat ggt gtg gag agg gag	768
Glu Met Gln Gly Tyr Gly Arg Gln Arg Thr Asp Gly Val Glu Arg Glu	
245 250 255	
ctt gac gac ggg ttt tgg gaa gag tta ctc atg aac aat gaa aac tcc	816
Leu Asp Asp Gly Phe Trp Glu Glu Leu Met Asn Asn Glu Asn Ser	
260 265 270	
gac gaa gaa gag gcg aat gtg aag caa gat tag	849
Asp Glu Glu Glu Ala Asn Val Lys Gln Asp	
275 280	

<210> 486 <211> 282 <212> PRT <213> Arabidopsis thaliana <400> 486

Met Asp Pro Ser Ser Ser Arg Ala Arg Ser Met Pro Pro Val
1 5 10 15

Pro Met Glu Gly Leu Gln Glu Ala Gly Pro Ser Pro Phe Leu Thr Lys
20 25 30

Thr Phe Glu Met Val Gly Asp Pro Asn Thr Asn His Ile Val Ser Trp
35 40 45

Asn Arg Gly Gly Ile Ser Phe Val Val Trp Asp Pro His Ser Phe Ser
50 55 60

Ala Thr Ile Leu Pro Leu Tyr Phe Lys His Asn Asn Phe Ser Ser Phe
65 70 75 80

Val Arg Gln Leu Asn Thr Tyr Gly Phe Arg Lys Ile Glu Ala Glu Arg
85 90 95

Trp Glu Phe Met Asn Glu Gly Phe Leu Met Gly Gln Arg Asp Leu Leu
100 105 110

Lys Ser Ile Lys Arg Arg Thr Ser Ser Ser Ser Pro Pro Ser Leu Asn
115 120 125

Tyr Ser Gln Ser Gln Pro Glu Ala His Asp Pro Gly Val Glu Leu Pro
130 135 140

Gln Leu Arg Glu Glu Arg His Val Leu Met Met Glu Ile Ser Thr Leu
145 150 155 160

Arg Gln Glu Glu Gln Arg Ala Arg Gly Tyr Val Gln Ala Met Glu Gln
165 170 175

Arg Ile Asn Gly Ala Glu Lys Lys Gln Arg His Met Met Ser Phe Leu
180 185 190

Arg Arg Ala Val Glu Asn Pro Ser Leu Leu Gln Gln Ile Phe Glu Gln
195 200 205

Lys Arg Asp Arg Glu Glu Ala Ala Met Ile Asp Gln Ala Gly Leu Ile
210 215 220

Lys Met Glu Glu Val Glu His Leu Ser Glu Leu Glu Ala Leu Ala Leu
225 230 235 240

Glu Met Gln Gly Tyr Gly Arg Gln Arg Thr Asp Gly Val Glu Arg Glu
245 250 255

Leu Asp Asp Gly Phe Trp Glu Glu Leu Leu Met Asn Asn Glu Asn Ser
260 265 270

Asp Glu Glu Glu Ala Asn Val Lys Gln Asp
275 280

<210> 487 <211> 690 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (112)..(690) <223> G2514

<400> 487
aaaactcttc catctctctt aattagtttg ccacctcgca cgtgtgacaa atcctctcttc 60
gccacgtgtg aaaaccccttc tccggcttgc tactaatata cgactaatag t atg aat 117
Met Asn
1

agt tca atg gct tct gcc ggc tta ggt agc cgg aga aag gat ccg gtg 165
Ser Ser Met Ala Ser Ala Gly Leu Gly Ser Arg Arg Lys Asp Pro Val
5 10 15

tac aga gga atc cgg tgc cga agt ggg aaa tgg gtc tcc gag att cgt 213
Tyr Arg Gly Ile Arg Cys Arg Ser Gly Lys Trp Val Ser Glu Ile Arg
20 25 30

gag ccg agg aaa acc acg aga atc tgg ctt gga act tac ccc atg gca 261
Glu Pro Arg Lys Thr Thr Arg Ile Trp Leu Gly Thr Tyr Pro Met Ala
35 40 45 50

gag atg gca gca gcc gcc tat gat gtg gct gct atg gct ctt aaa gga 309
Glu Met Ala Ala Ala Ala Tyr Asp Val Ala Ala Met Ala Leu Lys Gly
55 60 65

aga gaa gct gtc ttg aac ttc cct gga tcc gtc ggg tca tac ccg gtt 357
Arg Glu Ala Val Leu Asn Phe Pro Gly Ser Val Gly Ser Tyr Pro Val
70 75 80

cct gaa tca aca tcc gca gca gat ata cga gcc gct gcg gca gcc gca 405
Pro Glu Ser Thr Ser Ala Ala Asp Ile Arg Ala Ala Ala Ala Ala
85 90 95

gca gca atg aag gga tgt gag gaa ggg gag gag gag aaa aag gca aag 453
Ala Ala Met Lys Gly Cys Glu Glu Gly Glu Glu Glu Lys Lys Ala Lys
100 105 110

gag aag aag agt agt agt tcg aag tcg aga gcg cgt gag tgc cac gta 501
Glu Lys Lys Ser Ser Ser Ser Lys Ser Arg Ala Arg Glu Cys His Val

115	120	125	130	
gat aat gat gtt gga tct tcg tcg tgg tgt ggg aca gag ttc atg gac				549
Asp Asn Asp Val Gly Ser Ser Ser Trp Cys Gly Thr Glu Phe Met Asp				
135		140	145	
gaa gaa gaa gtc ttg aat atg cct aat ctg ctg gct aat atg gca gaa				597
Glu Glu Glu Val Leu Asn Met Pro Asn Leu Leu Ala Asn Met Ala Glu				
150		155	160	
ggg atg atg gtt gcg cgg cgg tcg tgg atg ggt tct cgg cgg tcg gat				645
Gly Met Met Val Ala Pro Pro Ser Trp Met Gly Ser Arg Pro Ser Asp				
165		170	175	
gac tct cgg gag aat tca aat gat gag gac ttg tgg ggc tat tga				690
Asp Ser Pro Glu Asn Ser Asn Asp Glu Asp Leu Trp Gly Tyr				
180	185	190		

<210> 488 <211> 192 <212> PRT <213> Arabidopsis thaliana <400> 488

Met Asn Ser Ser Met Ala Ser Ala Gly Leu Gly Ser Arg Arg Lys Asp	
1 5 10 15	
Pro Val Tyr Arg Gly Ile Arg Cys Arg Ser Gly Lys Trp Val Ser Glu	
20 25 30	
Ile Arg Glu Pro Arg Lys Thr Thr Arg Ile Trp Leu Gly Thr Tyr Pro	
35 40 45	
Met Ala Glu Met Ala Ala Ala Ala Tyr Asp Val Ala Ala Met Ala Leu	
50 55 60	
Lys Gly Arg Glu Ala Val Leu Asn Phe Pro Gly Ser Val Gly Ser Tyr	
65 70 75 80	
Pro Val Pro Glu Ser Thr Ser Ala Ala Asp Ile Arg Ala Ala Ala Ala	
85 90 95	
Ala Ala Ala Ala Met Lys Gly Cys Glu Glu Gly Glu Glu Lys Lys	
100 105 110	
Ala Lys Glu Lys Lys Ser Ser Ser Lys Ser Arg Ala Arg Glu Cys	
115 120 125	
His Val Asp Asn Asp Val Gly Ser Ser Ser Trp Cys Gly Thr Glu Phe	
130 135 140	

Met Asp Glu Glu Glu Val Leu Asn Met Pro Asn Leu Leu Ala Asn Met
145 150 155 160

Ala Glu Gly Met Met Val Ala Pro Pro Ser Trp Met Gly Ser Arg Pro
165 170 175

Ser Asp Asp Ser Pro Glu Asn Ser Asn Asp Glu Asp Leu Trp Gly Tyr
180 185 190

<210> 489 <211> 994 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(711) <223> G2547

<400> 489
atg gac caa gaa caa aca cca cat agc cca acc cgc cat agt cgc tca 48
Met Asp Gln Glu Gln Thr Pro His Ser Pro Thr Arg His Ser Arg Ser
1 5 10 15

ccc cca tcc tcc gcc tcc ggt tcc acc tca gca gaa ccg gtt cgg tcc 96
Pro Pro Ser Ser Ala Ser Gly Ser Thr Ser Ala Glu Pro Val Arg Ser
20 25 30

cga tgg tca cct aaa ccg gaa caa ata ctc ata ott gag tcg atc ttc 144
Arg Trp Ser Pro Lys Pro Glu Gln Ile Leu Ile Leu Glu Ser Ile Phe
35 40 45

cac agt ggt atg gtt aac cct ccc aaa gaa gag acg gta agg ata aga 192
His Ser Gly Met Val Asn Pro Pro Lys Glu Glu Thr Val Arg Ile Arg
50 55 60

aag atg ctc gag aaa ttt ggc gcg gtg gga gat gca aat gtc ttc tat 240
Lys Met Leu Glu Lys Phe Gly Ala Val Gly Asp Ala Asn Val Phe Tyr
65 70 75 80

tgg ttt caa aac cgg cgg tca agg tcc cgt cgg aga cag cga cag cta 288
Trp Phe Gln Asn Arg Arg Ser Arg Ser Arg Arg Arg Gln Arg Gln Leu
85 90 95

cag gct gca gct gca gca gcg gac gca acc acc aac act tct agc tct 336
Gln Ala Ala Ala Ala Ala Ala Asp Ala Thr Thr Asn Thr Ser Ser Ser
100 105 110

tct tct tct tat ggt ggt gga tgt gat aat caa agc aat agt ggc atg 384
Ser Ser Ser Tyr Gly Gly Gly Cys Asp Asn Gln Ser Asn Ser Gly Met
115 120 125

gag aat ctc tta aca atg tct ggc caa atg agt tac cat gaa gct act 432
Glu Asn Leu Leu Thr Met Ser Gly Gln Met Ser Tyr His Glu Ala Thr
130 135 140

cat cat cat tat caa aat cat agc tca aat gtc aca tcg att ttg tgc 480
His His His Tyr Gln Asn His Ser Ser Asn Val Thr Ser Ile Leu Cys
145 150 155 160

cca tct gat caa aac tcc aat ttt caa tac caa caa ggg gct ata acg 528

Pro Ser Asp Gln Asn Ser Asn Phe Gln Tyr Gln Gln Gly Ala Ile Thr
165 170 175

gtg ttt ata aac gga gtt ccg aca gaa gtg acg aga gga gga ata gac 576
Val Phe Ile Asn Gly Val Pro Thr Glu Val Thr Arg Gly Gly Ile Asp
180 185 190

atg aaa gca acg ttt gga gaa gat ttg gtt ttg gtg cat tcc tca ggt 624
Met Lys Ala Thr Phe Gly Glu Asp Leu Val Leu Val His Ser Ser Gly
195 200 205

gtt cct ctt cct act gat gag ttt ggt ttt ttg atg cat agc tta caa 672
Val Pro Leu Pro Thr Asp Glu Phe Gly Phe Leu Met His Ser Leu Gln
210 215 220

cat ggt gaa gct tat ttc ctg gtt cca aga cag aca tga actggcttta 721
His Gly Glu Ala Tyr Phe Leu Val Pro Arg Gln Thr
225 230 235

ctcgtatgtg tgggtatgca acagatgtct tgtttttcta ccttggactt tattgcaacg 781

gtccttccat tttttctttt cttttcgagt ctatcgtata atcaaagttt cttctattgg 841

ttttttttta aaaaatttta ttttgcaatt tattttataa agatgaagtc aaaagctctt 901

gtacgacgaa gatatctagg ttgtatcaat ttagttatct agatgtaaaa tacgtatgta 961

taattgattt gcaataaaaat ctctgtctag gga 994

<210> 490 <211> 236 <212> PRT <213> Arabidopsis thaliana <400> 490

Met Asp Gln Glu Gln Thr Pro His Ser Pro Thr Arg His Ser Arg Ser
1 5 10 15

Pro Pro Ser Ser Ala Ser Gly Ser Thr Ser Ala Glu Pro Val Arg Ser
20 25 30

Arg Trp Ser Pro Lys Pro Glu Gln Ile Leu Ile Leu Glu Ser Ile Phe
35 40 45

His Ser Gly Met Val Asn Pro Pro Lys Glu Glu Thr Val Arg Ile Arg
50 55 60

Lys Met Leu Glu Lys Phe Gly Ala Val Gly Asp Ala Asn Val Phe Tyr
65 70 75 80

Trp Phe Gln Asn Arg Arg Ser Arg Ser Arg Arg Arg Gln Arg Gln Leu
85 90 95

Gln Ala Ala Ala Ala Ala Ala Asp Ala Thr Thr Asn Thr Ser Ser Ser

100

105

110

Ser Ser Ser Tyr Gly Gly Gly Cys Asp Asn Gln Ser Asn Ser Gly Met
115 120 125

Glu Asn Leu Leu Thr Met Ser Gly Gln Met Ser Tyr His Glu Ala Thr
130 135 140

His His His Tyr Gln Asn His Ser Ser Asn Val Thr Ser Ile Leu Cys
145 150 155 160

Pro Ser Asp Gln Asn Ser Asn Phe Gln Tyr Gln Gln Gly Ala Ile Thr
165 170 175

Val Phe Ile Asn Gly Val Pro Thr Glu Val Thr Arg Gly Gly Ile Asp
180 185 190

Met Lys Ala Thr Phe Gly Glu Asp Leu Val Leu Val His Ser Ser Gly
195 200 205

Val Pro Leu Pro Thr Asp Glu Phe Gly Phe Leu Met His Ser Leu Gln
210 215 220

His Gly Glu Ala Tyr Phe Leu Val Pro Arg Gln Thr
225 230 235

<210> 491 <211> 1020 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(1020) <223> G2657

<400> 491
atg gat cca gtt caa tct cat gga tca caa agc tct ctt cct cct cct 48
Met Asp Pro Val Gln Ser His Gly Ser Gln Ser Ser Leu Pro Pro Pro
5 10

ttc cat gct aga gat ttc caa tta cat ctt caa caa caa caa caa cat 96
Phe His Ala Arg Asp Phe Gln Leu His Leu Gln Gln Gln Gln His
20 25 30

caa caa caa cat caa caa caa caa caa cag ttc ttt ctc cac cat 144
Gln Gln Gln His Gln Gln Gln Gln Gln Gln Phe Phe Leu His His
35 40 45

cat cag caa cca caa aga aac ctt gat caa gat cac gag cag caa gga 192
His Gln Gln Pro Gln Arg Asn Leu Asp Gln Asp His Glu Gln Gln Gly
50 55 60

ggg tca ata ttg aat aga tct atc aag atg gat cgc gaa gag aca agc 240
Gly Ser Ile Leu Asn Arg Ser Ile Lys Met Asp Arg Glu Glu Thr Ser

atg gcg gcg gct caa gga cta cca ccg aat ctt ctt ggt tcg gtt cag 960
Met Ala Ala Ala Gln Gly Leu Pro Pro Asn Leu Leu Gly Ser Val Gln
305 310 315 320

tgt cca ccg cca caa cag aat gat cag cag tat tgg tct acg ggt cgg 1008
Leu Pro Pro Pro Gln Gln Asn Asp Gln Gln Tyr Trp Ser Thr Gly Arg
325 330 335

cca ccg tat tga 1020
Pro Pro Tyr

<210> 492 <211> 339 <212> PRT <213> Arabidopsis thaliana <400> 492

Met Asp Pro Val Gln Ser His Gly Ser Gln Ser Ser Leu Pro Pro
1 5 10 15

Phe His Ala Arg Asp Phe Gln Leu His Leu Gln Gln Gln Gln His
20 25 30

Gln Gln Gln His Gln Gln Gln Gln Gln Gln Phe Phe Leu His His
35 40 45

His Gln Gln Pro Gln Arg Asn Leu Asp Gln Asp His Glu Gln Gln Gly
50 55 60

Gly Ser Ile Leu Asn Arg Ser Ile Lys Met Asp Arg Glu Glu Thr Ser
65 70 75 80

Asp Asn Met Asp Asn Ile Ala Asn Thr Asn Ser Gly Ser Glu Gly Lys
85 90 95

Glu Met Ser Leu His Gly Gly Glu Gly Gly Ser Gly Gly Gly Ser
100 105 110

Gly Glu Gln Met Thr Arg Arg Pro Arg Gly Arg Pro Ala Gly Ser Lys
115 120 125

Asn Lys Pro Lys Ala Pro Ile Ile Ile Thr Arg Asp Ser Ala Asn Ala
130 135 140

Leu Arg Thr His Val Met Glu Ile Gly Asp Gly Cys Asp Ile Val Asp
145 150 155 160

Cys Met Ala Thr Phe Ala Arg Arg Arg Gln Arg Gly Val Cys Val Met

165

170

175

Ser Gly Thr Gly Ser Val Thr Asn Val Thr Ile Arg Gln Pro Gly Ser
180 185 190

Pro Pro Gly Ser Val Val Ser Leu His Gly Arg Phe Glu Ile Leu Ser
195 200 205

Leu Ser Gly Ser Phe Leu Pro Pro Pro Ala Pro Pro Ala Ala Thr Gly
210 215 220

Leu Ser Val Tyr Leu Ala Gly Gly Gln Gly Gln Val Val Gly Gly Ser
225 230 235 240

Val Val Gly Pro Leu Leu Cys Ser Gly Pro Val Val Val Met Ala Ala
245 250 255

Ser Phe Ser Asn Ala Ala Tyr Glu Arg Leu Pro Leu Glu Glu Asp Glu
260 265 270

Met Gln Thr Pro Val Gln Gly Gly Gly Gly Gly Gly Gly Gly Gly
275 280 285

Gly Met Gly Ser Pro Pro Met Met Gly Gln Gln Gln Ala Met Ala Ala
290 295 300

Met Ala Ala Ala Gln Gly Leu Pro Pro Asn Leu Leu Gly Ser Val Gln
305 310 315 320

Leu Pro Pro Pro Gln Gln Asn Asp Gln Gln Tyr Trp Ser Thr Gly Arg
325 330 335

Pro Pro Tyr

<210> 493 <211> 880 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (188)..(880) <223> G2659

<400> 493

agtatatatc tatgtacata cgacgacaaa aaaaaatatg tatgtacata catctoctct 60

cactctaagc tttatttctg ataaattata gtatagtcac attcttttag gagagaaccc 120

accgaaagaa agctccaaac ccaacaaaaa gggaggcggc ggagaagcaa acaacagcaa 180

caaaaaa atg cag cca gag gtt tca gat caa ata ttt tat gcc ttc ctc	229
Met Gln Pro Glu Val Ser Asp Gln Ile Phe Tyr Ala Phe Leu	
1 5 10	
acc gga gga tta tgt gcc tcg tct act tcc acc acc gtg acg tcg tcg	277
Thr Gly Gly Leu Cys Ala Ser Ser Thr Ser Thr Val Thr Ser Ser	
15 20 25 30	
tct gac cct ttt gcc acg gtt tat gaa gac aaa gct ctt gct tct ctg	325
Ser Asp Pro Phe Ala Thr Val Tyr Glu Asp Lys Ala Leu Ala Ser Leu	
35 40 45	
agg aac cat aaa gag gct gag cga aag aga aga gca aga atc aat tcc	373
Arg Asn His Lys Glu Ala Glu Arg Lys Arg Arg Ala Arg Ile Asn Ser	
50 55 60	
cat ctc aac aag ctc cgc aag tta ctc tct tgt aac tcc aag aca gac	421
His Leu Asn Lys Leu Arg Lys Leu Leu Ser Cys Asn Ser Lys Thr Asp	
65 70 75	
aaa tcc aca cta cta gca aaa gtg gtt caa cga gtc aaa gaa cta aaa	469
Lys Ser Thr Leu Leu Ala Lys Val Val Gln Arg Val Lys Glu Leu Lys	
80 85 90	
caa caa acc cta gaa atc acc gac gaa aca ata ccg tcg gag act gac	517
Gln Gln Thr Leu Glu Ile Thr Asp Glu Thr Ile Pro Ser Glu Thr Asp	
95 100 105 110	
gaa atc agt gta ctc aac att gag gac tgt tcc aga ggc gac gat cga	565
Glu Ile Ser Val Leu Asn Ile Glu Asp Cys Ser Arg Gly Asp Asp Arg	
115 120 125	
cgg ata atc ttt aag gta tcg ttt tgc tgc gag gac cgg cca gag ctc	613
Arg Ile Ile Phe Lys Val Ser Phe Cys Cys Glu Asp Arg Pro Glu Leu	
130 135 140	
ttg aaa gat ctc atg gag aca ctc aaa tct ctt cag atg gaa act ctc	661
Leu Lys Asp Leu Met Glu Thr Leu Lys Ser Leu Gln Met Glu Thr Leu	
145 150 155	
ttt gcc gac atg aca aca gtc ggt ggt cga aca aga aac gtt ctc gtt	709
Phe Ala Asp Met Thr Thr Val Gly Gly Arg Thr Arg Asn Val Leu Val	
160 165 170	
gtg gcc gct gac aaa gag cat cac ggc gtc cag tcg gtg aat ttt cta	757
Val Ala Ala Asp Lys Glu His His Gly Val Gln Ser Val Asn Phe Leu	
175 180 185 190	
cag aac gca ctc aag tct tta ctc gaa cgg tca agc aag tcg gtg atg	805
Gln Asn Ala Leu Lys Ser Leu Leu Glu Arg Ser Ser Lys Ser Val Met	
195 200 205	
gtg gga cat ggt ggt ggt ggt ggg gaa gaa agg tta aaa cga cgt cgt	853
Val Gly His Gly Gly Gly Gly Gly Glu Glu Arg Leu Lys Arg Arg Arg	
210 215 220	
gcg ctg gat cac atc ata atg gtc tga	880

Ala Leu Asp His Ile Ile Met Val
225 230

<210> 494 <211> 230 <212> PRT <213> Arabidopsis thaliana <400> 494

Met Gln Pro Glu Val Ser Asp Gln Ile Phe Tyr Ala Phe Leu Thr Gly
1 5 10 15

Gly Leu Cys Ala Ser Ser Thr Ser Thr Thr Val Thr Ser Ser Ser Asp
20 25 30

Pro Phe Ala Thr Val Tyr Glu Asp Lys Ala Leu Ala Ser Leu Arg Asn
35 40 45

His Lys Glu Ala Glu Arg Lys Arg Arg Ala Arg Ile Asn Ser His Leu
50 55 60

Asn Lys Leu Arg Lys Leu Leu Ser Cys Asn Ser Lys Thr Asp Lys Ser
65 70 75 80

Thr Leu Leu Ala Lys Val Val Gln Arg Val Lys Glu Leu Lys Gln Gln
85 90 95

Thr Leu Glu Ile Thr Asp Glu Thr Ile Pro Ser Glu Thr Asp Glu Ile
100 105 110

Ser Val Leu Asn Ile Glu Asp Cys Ser Arg Gly Asp Asp Arg Arg Ile
115 120 125

Ile Phe Lys Val Ser Phe Cys Cys Glu Asp Arg Pro Glu Leu Leu Lys
130 135 140

Asp Leu Met Glu Thr Leu Lys Ser Leu Gln Met Glu Thr Leu Phe Ala
145 150 155 160

Asp Met Thr Thr Val Gly Gly Arg Thr Arg Asn Val Leu Val Val Ala
165 170 175

Ala Asp Lys Glu His His Gly Val Gln Ser Val Asn Phe Leu Gln Asn
180 185 190

Ala Leu Lys Ser Leu Leu Glu Arg Ser Ser Lys Ser Val Met Val Gly
195 200 205

His Gly Gly Gly Gly Gly Glu Glu Arg Leu Lys Arg Arg Arg Ala Leu
 210 215 220

Asp His Ile Ile Met Val
 225 230

<210> 495 <211> 866 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
 <222> (46)..(837) <223> G2701

<400> 495
 gtgtttgttag ttgaaactta ttcttcctt tttttgttt taggt atg gag act ctg 57
 Met Glu Thr Leu
 1

cat cca ttc tct cac cta cct atc tct gac cac cgg ttc gtt gtt caa 105
 His Pro Phe Ser His Leu Pro Ile Ser Asp His Arg Phe Val Val Gln
 5 10 15 20

gag atg gtg agc tta cac agc tcg agt agc ggt agc tgg act aaa gaa 153
 Glu Met Val Ser Leu His Ser Ser Ser Ser Gly Ser Trp Thr Lys Glu
 25 30 35

gag aac aag atg ttc gaa cga gct ctt gcg ata tac gct gaa gac tcg 201
 Glu Asn Lys Met Phe Glu Arg Ala Leu Ala Ile Tyr Ala Glu Asp Ser
 40 45 50

cct gat cgc tgg ttt aaa gtt gct tcc atg atc cct gga aag act gtt 249
 Pro Asp Arg Trp Phe Lys Val Ala Ser Met Ile Pro Gly Lys Thr Val
 55 60 65

ttt gat gtt atg aag caa tat agt aag ctt gaa gaa gac gtt ttc gat 297
 Phe Asp Val Met Lys Gln Tyr Ser Lys Leu Glu Glu Asp Val Phe Asp
 70 75 80

att gaa gca gga cgt gtt ccc att cct ggt tat cct gca gct tct tct 345
 Ile Glu Ala Gly Arg Val Pro Ile Pro Gly Tyr Pro Ala Ala Ser Ser
 85 90 95 100

ccc ttg ggg ttt gac acg gac atg tgt cgt aaa cgg cct agt gga gct 393
 Pro Leu Gly Phe Asp Thr Asp Met Cys Arg Lys Arg Pro Ser Gly Ala
 105 110 115

aga gga tct gat caa gat cga aag aaa gga gtc cct tgg aca gag gaa 441
 Arg Gly Ser Asp Gln Asp Arg Lys Lys Gly Val Pro Trp Thr Glu Glu
 120 125 130

gaa cac agg aga ttc ttg tta ggc ctt ctc aag tac ggt aaa gga gat 489
 Glu His Arg Arg Phe Leu Leu Gly Leu Leu Lys Tyr Gly Lys Gly Asp
 135 140 145

tgg aga aac ata tcg aga aac ttc gtg gtg tca aag acg cca acg caa 537
 Trp Arg Asn Ile Ser Arg Asn Phe Val Val Ser Lys Thr Pro Thr Gln
 150 155 160

gtg gcg agc cac gcc caa aag tat tac cag aga cag ctc tcc gga gcc 585
Val Ala Ser His Ala Gln Lys Tyr Tyr Gln Arg Gln Leu Ser Gly Ala
165 170 175 180

aag gac aaa cgc agg cca agt atc cat gac atc aca acc ggc aat ctt 633
Lys Asp Lys Arg Arg Pro Ser Ile His Asp Ile Thr Thr Gly Asn Leu
185 190 195

ctc aat gcc aat ctc aac cgt tcc ttt tcc gat cat aga gat att ctc 681
Leu Asn Ala Asn Leu Asn Arg Ser Phe Ser Asp His Arg Asp Ile Leu
200 205 210

cct gat tta ggg ttt atc gat aag gat gat acg gag gag gga gta ata 729
Pro Asp Leu Gly Phe Ile Asp Lys Asp Asp Thr Glu Glu Gly Val Ile
215 220 225

ttt atg ggt cag aat ctc tct tca gaa aat ctg ttt tct cca tca cca 777
Phe Met Gly Gln Asn Leu Ser Ser Glu Asn Leu Phe Ser Pro Ser Pro
230 235 240

act tca ttc gaa gct gcc att aac ttc gcc gga gaa aat gtc ttc agt 825
Thr Ser Phe Glu Ala Ala Ile Asn Phe Ala Gly Glu Asn Val Phe Ser
245 250 255 260

gcc gga gct taa ggcaacatag aatccccaaa ctcagcggc 866
Ala Gly Ala

<210> 496 <211> 263 <212> PRT <213> Arabidopsis thaliana <400> 496

Met Glu Thr Leu His Pro Phe Ser His Leu Pro Ile Ser Asp His Arg
1 5 10 15

Phe Val Val Gln Glu Met Val Ser Leu His Ser Ser Ser Ser Gly Ser
20 25 30

Trp Thr Lys Glu Glu Asn Lys Met Phe Glu Arg Ala Leu Ala Ile Tyr
35 40 45

Ala Glu Asp Ser Pro Asp Arg Trp Phe Lys Val Ala Ser Met Ile Pro
50 55 60

Gly Lys Thr Val Phe Asp Val Met Lys Gln Tyr Ser Lys Leu Glu Glu
65 70 75 80

Asp Val Phe Asp Ile Glu Ala Gly Arg Val Pro Ile Pro Gly Tyr Pro
85 90 95

Ala Ala Ser Ser Pro Leu Gly Phe Asp Thr Asp Met Cys Arg Lys Arg
100 105 110

Pro Ser Gly Ala Arg Gly Ser Asp Gln Asp Arg Lys Lys Gly Val Pro
115 120 125

Trp Thr Glu Glu Glu His Arg Arg Phe Leu Leu Gly Leu Leu Lys Tyr
130 135 140

Gly Lys Gly Asp Trp Arg Asn Ile Ser Arg Asn Phe Val Val Ser Lys
145 150 155 160

Thr Pro Thr Gln Val Ala Ser His Ala Gln Lys Tyr Tyr Gln Arg Gln
165 170 175

Leu Ser Gly Ala Lys Asp Lys Arg Arg Pro Ser Ile His Asp Ile Thr
180 185 190

Thr Gly Asn Leu Leu Asn Ala Asn Leu Asn Arg Ser Phe Ser Asp His
195 200 205

Arg Asp Ile Leu Pro Asp Leu Gly Phe Ile Asp Lys Asp Asp Thr Glu
210 215 220

Glu Gly Val Ile Phe Met Gly Gln Asn Leu Ser Ser Glu Asn Leu Phe
225 230 235 240

Ser Pro Ser Pro Thr Ser Phe Glu Ala Ala Ile Asn Phe Ala Gly Glu
245 250 255

Asn Val Phe Ser Ala Gly Ala
260

<210> 497 <211> 972 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
<222> (1)..(972) <223> G2741

<400> 497
atg gga gag gaa gta caa atg agc gat tac gat gtt tcc ggc gac gga 48
Met Gly Glu Glu Val Gln Met Ser Asp Tyr Asp Val Ser Gly Asp Gly
1 5 10 15

gat agg gtt tct gaa tgg gag atg gga tta cca agc gac gaa gat cta 96
Asp Arg Val Ser Glu Trp Glu Met Gly Leu Pro Ser Asp Glu Asp Leu
20 25 30

gca tct ctt tct tac tct ctg att cca ccg aat ttg gcg atg gcg ttt 144
Ala Ser Leu Ser Tyr Ser Leu Ile Pro Pro Asn Leu Ala Met Ala Phe
35 40 45

agt atc aca ccg gag aga agc cgt acg att cag gat gtg aat cgt gca	192
Ser Ile Thr Pro Glu Arg Ser Arg Thr Ile Gln Asp Val Asn Arg Ala	
50 55 60	
tcg gag acg acg ctc tcg tcg cta cgt ggt gga tct tca ggt cca aat	240
Ser Glu Thr Thr Leu Ser Ser Leu Arg Gly Gly Ser Ser Gly Pro Asn	
65 70 75 80	
acc tcg tcg tcg aat aat aac gtg gag gag gaa gat cga gtt gga tct	288
Thr Ser Ser Ser Asn Asn Val Glu Glu Glu Asp Arg Val Gly Ser	
85 90 95	
agc agt cct gga tcg gat tcg aag aag caa aag aca tca aac ggt gat	336
Ser Ser Pro Gly Ser Asp Ser Lys Lys Gln Lys Thr Ser Asn Gly Asp	
100 105 110	
gga gat gac ggt ggc ggt gtg gat ccg gat tcg gcg atg gcg gcg gaa	384
Gly Asp Asp Gly Gly Gly Val Asp Pro Asp Ser Ala Met Ala Ala Glu	
115 120 125	
gaa gga gat tca gga act gaa gat cta tct ggg aaa aca ctt aaa cga	432
Glu Gly Asp Ser Gly Thr Glu Asp Leu Ser Gly Lys Thr Leu Lys Arg	
130 135 140	
ccg cgt tta gtg tgg aca ccg cag cta cac aag aga ttc gtt gac gtt	480
Pro Arg Leu Val Trp Thr Pro Gln Leu His Lys Arg Phe Val Asp Val	
145 150 155 160	
gta gct cac tta ggg atc aaa aac gct gtt ccg aag acg att atg cag	528
Val Ala His Leu Gly Ile Lys Asn Ala Val Pro Lys Thr Ile Met Gln	
165 170 175	
ctg atg aac gtt gaa gga tta act cgt gag aac gtt gcg tct cat ctt	576
Leu Met Asn Val Glu Gly Leu Thr Arg Glu Asn Val Ala Ser His Leu	
180 185 190	
caa aag tat agg ctt tac ctc aaa agg atg cag gga ttg act aat gaa	624
Gln Lys Tyr Arg Leu Tyr Leu Lys Arg Met Gln Gly Leu Thr Asn Glu	
195 200 205	
ggt ccc tct gct tcg gat aag ctc ttc tct tca aca cct gtt cct cca	672
Gly Pro Ser Ala Ser Asp Lys Leu Phe Ser Ser Thr Pro Val Pro Pro	
210 215 220	
cag agc ttc caa gat atc ggt ggc ggt ggc agc agc ggt aat gtt	720
Gln Ser Phe Gln Asp Ile Gly Gly Gly Gly Ser Ser Gly Asn Val	
225 230 235 240	
gga gtg ccg att ccg ggg gcg tat gga acg caa cag atg atg cag atg	768
Gly Val Pro Ile Pro Gly Ala Tyr Gly Thr Gln Gln Met Met Gln Met	
245 250 255	
cca gtt tat gca cat cat atg ggt atg caa gga tat cat cat caa aat	816
Pro Val Tyr Ala His His Met Gly Met Gln Gly Tyr His His Gln Asn	
260 265 270	

cat aat cat gat cct tat cat cag aat cat cgt cat cat cat gga gct 864
His Asn His Asp Pro Tyr His Gln Asn His Arg His His His Gly Ala
275 280 285

ggt gga aat ggt gcg ttt gag tca aat cct tat atg atg cag cag aat 912
Gly Gly Asn Gly Ala Phe Glu Ser Asn Pro Tyr Met Met Gln Gln Asn
290 295 300

aag ttt gga tcc atg gct tct tat cct tct gtt gga ggt gga agc gca 960
Lys Phe Gly Ser Met Ala Ser Tyr Pro Ser Val Gly Gly Gly Ser Ala
305 310 315 320

aat gag aat taa 972
Asn Glu Asn

<210> 498 <211> 323 <212> PRT <213> Arabidopsis thaliana <400> 498

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Asp Arg Val Ser Glu Trp Glu Met Gly Leu Pro Ser Asp Glu Asp Leu
20 25 30

Ala Ser Leu Ser Tyr Ser Leu Ile Pro Pro Asn Leu Ala Met Ala Phe
35 40 45

Ser Ile Thr Pro Glu Arg Ser Arg Thr Ile Gln Asp Val Asn Arg Ala
50 55 60

Ser Glu Thr Thr Leu Ser Ser Leu Arg Gly Gly Ser Ser Gly Pro Asn
65 70 75 80

Thr Ser Ser Ser Asn Asn Asn Val Glu Glu Glu Asp Arg Val Gly Ser
85 90 95

Ser Ser Pro Gly Ser Asp Ser Lys Lys Gln Lys Thr Ser Asn Gly Asp
100 105 110

Gly Asp Asp Gly Gly Gly Val Asp Pro Asp Ser Ala Met Ala Ala Glu
115 120 125

Glu Gly Asp Ser Gly Thr Glu Asp Leu Ser Gly Lys Thr Leu Lys Arg
130 135 140

Pro Arg Leu Val Trp Thr Pro Gln Leu His Lys Arg Phe Val Asp Val
145 150 155 160

Val Ala His Leu Gly Ile Lys Asn Ala Val Pro Lys Thr Ile Met Gln
165 170 175

Leu Met Asn Val Glu Gly Leu Thr Arg Glu Asn Val Ala Ser His Leu
180 185 190

Gln Lys Tyr Arg Leu Tyr Leu Lys Arg Met Gln Gly Leu Thr Asn Glu
195 200 205

Gly Pro Ser Ala Ser Asp Lys Leu Phe Ser Ser Thr Pro Val Pro Pro
210 215 220

Gln Ser Phe Gln Asp Ile Gly Gly Gly Gly Gly Ser Ser Gly Asn Val
225 230 235 240

Gly Val Pro Ile Pro Gly Ala Tyr Gly Thr Gln Gln Met Met Gln Met
245 250 255

Pro Val Tyr Ala His His Met Gly Met Gln Gly Tyr His His Gln Asn
260 265 270

His Asn His Asp Pro Tyr His Gln Asn His Arg His His His Gly Ala
275 280 285

Gly Gly Asn Gly Ala Phe Glu Ser Asn Pro Tyr Met Met Gln Gln Asn
290 295 300

Lys Phe Gly Ser Met Ala Ser Tyr Pro Ser Val Gly Gly Gly Ser Ala
305 310 315 320

Asn Glu Asn

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<222> (1)..(1362) <223> G2781

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Met Asp Gln Lys Ser Lys Thr Ile Gly Glu Gln Trp Trp Arg Ser Asn
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cca acg ttt aaa ccg cct gaa acg cca tta gat tct atg gag ttt ttg 96
Pro Thr Phe Lys Pro Pro Glu Thr Pro Leu Asp Ser Met Glu Phe Leu
20 25 30

tca cgt act tgg agt gct tcc gct act gaa gtt tca aga gct gtc gtc Ser Arg Thr Trp Ser Ala Ser Ala Thr Glu Val Ser Arg Ala Val Val	144
35 40 45	
gcg tct cca ccg act tct caa ccg ccg caa atg cgt ttc tcg gag atc Ala Ser Pro Pro Thr Ser Gln Pro Pro Gln Met Arg Phe Ser Glu Ile	192
50 55 60	
caa aac ggt tct tct gac gtc act ttg gtg ccg gaa gat gaa gaa aac Gln Asn Gly Ser Ser Asp Val Thr Leu Val Pro Glu Asp Glu Glu Asn	240
65 70 75 80	
ggc atc gtt ctt gga aat act ttt tct ttt gct tct tca gaa act tct Gly Ile Val Leu Gly Asn Thr Phe Ser Phe Ala Ser Ser Glu Thr Ser	288
85 90 95	
tta atg gtc atg gaa cgt atc atg gct cag tca ccg gag att tca tcg Leu Met Val Met Glu Arg Ile Met Ala Gln Ser Pro Glu Ile Ser Ser	336
100 105 110	
cca cga aca tca ggg aga ctt tct cat agc tca ttc acc gac agt cct Pro Arg Thr Ser Gly Arg Leu Ser His Ser Ser Phe Thr Asp Ser Pro	384
115 120 125	
ccg atc tct ccc tcc gac atc gac gac ttt aag caa ttc tac cgt gtg Pro Ile Ser Pro Ser Asp Ile Asp Asp Phe Lys Gln Phe Tyr Arg Val	432
130 135 140	
agc cct tcc ttt aac ggc cac ata cgt ggt tca tca gcc att ccc ggc Ser Pro Ser Phe Asn Gly His Ile Arg Gly Ser Ser Ala Ile Pro Gly	480
145 150 155 160	
acc gcc gga ggg tct aaa act gtt ggt cgt tgg cta aag gac cgg cga Thr Ala Gly Gly Ser Lys Thr Val Gly Arg Trp Leu Lys Asp Arg Arg	528
165 170 175	
gag aag aag aga gaa gag acg cgt gca caa aat gca cag ctt cac gcg Glu Lys Lys Arg Glu Glu Thr Arg Ala Gln Asn Ala Gln Leu His Ala	576
180 185 190	
gct gta tct gta gct gga gtg gct gcc gcg gtg gct gct atc gct gca Ala Val Ser Val Ala Gly Val Ala Ala Ala Val Ala Ala Ile Ala Ala	624
195 200 205	
gcc act gcc tct cag tcg agt tct gga act gac gag caa gtg gcc aaa Ala Thr Ala Ser Gln Ser Ser Ser Gly Thr Asp Glu Gln Val Ala Lys	672
210 215 220	
aat gac tcc gcg gtg gct tct gcc gcg act ttg gtg gcg gcg aag tgt Asn Asp Ser Ala Val Ala Ser Ala Ala Thr Leu Val Ala Ala Lys Cys	720
225 230 235 240	
gtg gaa gct gca gag att atg gga gct gat cgt gag cac ttg gcc tcc Val Glu Ala Ala Glu Ile Met Gly Ala Asp Arg Glu His Leu Ala Ser	768
245 250 255	

gtt gtt agt tct gcg gtt aac gtt cgt tct gcc gga gat atc atg act 816
Val Val Ser Ser Ala Val Asn Val Arg Ser Ala Gly Asp Ile Met Thr
260 265 270

ttg acc gcc gct gct gcc aca gct ttg aga gga gct gca caa tta aag 864
Leu Thr Ala Ala Ala Thr Ala Leu Arg Gly Ala Ala Gln Leu Lys
275 280 285

gca aga gca ttg aag gag gta tgg aac att gcg gct gtg att cct gta 912
Ala Arg Ala Ala Leu Lys Glu Val Trp Asn Ile Ala Val Ile Pro Val
290 295 300

gat aag ggt aca cca aaa ggc ggt ggt ggt tat aga ggt ggc gag 960
Asp Lys Gly Thr Pro Lys Gly Gly Gly Tyr Arg Gly Gly Glu
305 310 315 320

tta gcc cct gta gat aat ttt ctt ggg att tgc agt aaa gaa ttg cta 1008
Leu Ala Pro Val Asp Asn Phe Leu Gly Ile Cys Ser Lys Glu Leu Leu
325 330 335

gct aaa ggt tgc gaa ttg ctt aaa cgc acc cgc aaa ggt gat ctt cat 1056
Ala Lys Gly Cys Glu Leu Leu Lys Arg Thr Arg Lys Gly Asp Leu His
340 345 350

tgg aaa gtt gtt tcg atc tac att aat aga aca aag cag gta ata ttg 1104
Trp Lys Val Val Ser Ile Tyr Ile Asn Arg Thr Lys Gln Val Ile Leu
355 360 365

aag act aag agc aaa cat gtt gct ggg acc atc aca aag aag aaa aag 1152
Lys Thr Lys Ser Lys His Val Ala Gly Thr Ile Thr Lys Lys Lys Lys
370 375 380

aat gtg gtg gtg gga ttg gtt aag gga tta cgg gcg tgg cct ggc cgg 1200
Asn Val Val Val Gly Leu Val Lys Gly Leu Pro Ala Trp Pro Gly Arg
385 390 395 400

gaa atg ctc gag ggt gga gag aat ttg agg tat ttc ggg ctg aag acg 1248
Glu Met Leu Glu Gly Gly Glu Asn Leu Arg Tyr Phe Gly Leu Lys Thr
405 410 415

gtg gag aaa aga gtg att gaa ttc gag tgc aaa agc caa agg gaa tat 1296
Val Glu Lys Arg Val Ile Glu Phe Glu Cys Lys Ser Gln Arg Glu Tyr
420 425 430

gat ctt tgg aca caa ggt gtt tcc atg ctt ctt tcc att gct tct gat 1344
Asp Leu Trp Thr Gln Gly Val Ser Met Leu Leu Ser Ile Ala Ser Asp
435 440 445

agg aaa cat aaa tgt tga 1362
Arg Lys His Lys Cys
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<210> 500 <211> 453 <212> PRT <213> Arabidopsis thaliana <400> 500

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 20 25 30

Ser Arg Thr Trp Ser Ala Ser Ala Thr Glu Val Ser Arg Ala Val Val
 35 40 45

Ala Ser Pro Pro Thr Ser Gln Pro Pro Gln Met Arg Phe Ser Glu Ile
 50 55 60

Gln Asn Gly Ser Ser Asp Val Thr Leu Val Pro Glu Asp Glu Glu Asn
 65 70 75 80

Gly Ile Val Leu Gly Asn Thr Phe Ser Phe Ala Ser Ser Glu Thr Ser
 85 90 95

Leu Met Val Met Glu Arg Ile Met Ala Gln Ser Pro Glu Ile Ser Ser
 100 105 110

Pro Arg Thr Ser Gly Arg Leu Ser His Ser Ser Phe Thr Asp Ser Pro
 115 120 125

Pro Ile Ser Pro Ser Asp Ile Asp Asp Phe Lys Gln Phe Tyr Arg Val
 130 135 140

Ser Pro Ser Phe Asn Gly His Ile Arg Gly Ser Ser Ala Ile Pro Gly
 145 150 155 160

Thr Ala Gly Gly Ser Lys Thr Val Gly Arg Trp Leu Lys Asp Arg Arg
 165 170 175

Glu Lys Lys Arg Glu Glu Thr Arg Ala Gln Asn Ala Gln Leu His Ala
 180 185 190

Ala Val Ser Val Ala Gly Val Ala Ala Ala Val Ala Ala Ile Ala Ala
 195 200 205

Ala Thr Ala Ser Gln Ser Ser Ser Gly Thr Asp Glu Gln Val Ala Lys
 210 215 220

Asn Asp Ser Ala Val Ala Ser Ala Ala Thr Leu Val Ala Ala Lys Cys
 225 230 235 240

<210> 501 <211> 495 <212> DNA <213> Arabidopsis thaliana <220> <221> CDS
 <222> (1)..(495) <223> G2839

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 1 5 10 15

aaa tgt ttg atg ttg tta tca aga gtt gga gaa tgc gcc gga gga gga 96
 Lys Cys Leu Met Leu Leu Ser Arg Val Gly Glu Cys Gly Gly Gly Gly
 20 25 30

gag aaa cga gtt ttc cga tgc aag act tgt ctt aaa gag ttt tcg tcg 144
 Glu Lys Arg Val Phe Arg Cys Lys Thr Cys Leu Lys Glu Phe Ser Ser
 35 40 45

ttt caa gct ttg gga ggt cat cgt gca agc cac aag aaa ctc att aac 192
 Phe Gln Ala Leu Gly Gly His Arg Ala Ser His Lys Lys Leu Ile Asn
 50 55 60

agt agc gat cca tca ctt ctt gga tcc ttg tct aac aag aaa act aaa 240
 Ser Ser Asp Pro Ser Leu Leu Gly Ser Leu Ser Asn Lys Lys Thr Lys
 65 70 75 80

acg gcg acg tct cat cct tgt ccg ata tgt gcc gtg gag ttt ccg atg 288
 Thr Ala Thr Ser His Pro Cys Pro Ile Cys Gly Val Glu Phe Pro Met
 85 90 95

ggg caa gct ctt ggt ggt cac atg agg aga cat agg agt gag aaa gcc 336
 Gly Gln Ala Leu Gly Gly His Met Arg Arg His Arg Ser Glu Lys Ala
 100 105 110

tca cca gcc acg ttg gtt aca cgt tct ttt tta ccg gag acg acg acg 384
 Ser Pro Gly Thr Leu Val Thr Arg Ser Phe Leu Pro Glu Thr Thr Thr
 115 120 125

gtg acg act ttg aaa aaa tcg agt agt ggg aag aga gtg gct tgt ttg 432
 Val Thr Thr Leu Lys Lys Ser Ser Ser Gly Lys Arg Val Ala Cys Leu
 130 135 140

gac tta gat tcg atg gag agt tta gtc aat tgg aag ttg gag ttg gga 480
 Asp Leu Asp Ser Met Glu Ser Leu Val Asn Trp Lys Lys Leu Glu Leu Gly
 145 150 155 160

aga acg att tct tga 495
 Arg Thr Ile Ser

<210> 502 <211> 164 <212> PRT <213> Arabidopsis thaliana <400> 502

Met Val Ala Arg Ser Glu Glu Val Glu Ile Val Glu Asp Thr Ala Ala
 1 5 10 15

Lys Cys Leu Met Leu Leu Ser Arg Val Gly Glu Cys Gly Gly Gly Gly
 20 25 30

Glu Lys Arg Val Phe Arg Cys Lys Thr Cys Leu Lys Glu Phe Ser Ser
35 40 45

Phe Gln Ala Leu Gly Gly His Arg Ala Ser His Lys Lys Leu Ile Asn
50 55 60

Ser Ser Asp Pro Ser Leu Leu Gly Ser Leu Ser Asn Lys Lys Thr Lys
65 70 75 80

Thr Ala Thr Ser His Pro Cys Pro Ile Cys Gly Val Glu Phe Pro Met
85 90 95

Gly Gln Ala Leu Gly Gly His Met Arg Arg His Arg Ser Glu Lys Ala
100 105 110

Ser Pro Gly Thr Leu Val Thr Arg Ser Phe Leu Pro Glu Thr Thr Thr
115 120 125

Val Thr Thr Leu Lys Lys Ser Ser Ser Gly Lys Arg Val Ala Cys Leu
130 135 140

Asp Leu Asp Ser Met Glu Ser Leu Val Asn Trp Lys Leu Glu Leu Gly
145 150 155 160

Arg Thr Ile Ser

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<222> (184)..(2493) <223> G3010

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aagattcgac ctttattaga tattaacgac tctggatttt tgggtttttg gagtggatc 180
cac atg ggt tct tat ccg gat gga ttc cct gga tcc atg gac gag ttg 228
Met Gly Ser Tyr Pro Asp Gly Phe Pro Gly Ser Met Asp Glu Leu
1 5 10 15
gat ttc aat aag gac ttt gat ttg cct ccc tcc tca aac caa acc tta 276
Asp Phe Asn Lys Asp Phe Asp Leu Pro Pro Ser Ser Asn Gln Thr Leu
20 25 30
ggg tta gct aat ggg ttc tat tta gat gac tta gat ttc tca tcc ttg 324

Gly	Leu	Ala	Asn	Gly	Phe	Tyr	Leu	Asp	Asp	Leu	Asp	Phe	Ser	Ser	Leu	
			35					40					45			
gat	cct	cca	gag	gca	tat	ccc	tcc	cag	aac	aac	aac	aac	aac	aac	atc	372
Asp	Pro	Pro	Glu	Ala	Tyr	Pro	Ser	Gln	Asn	Asn	Asn	Asn	Asn	Asn	Ile	
		50					55						60			
aac	aac	aaa	gct	gta	gca	gga	gat	ctg	tta	tca	tct	tca	tct	gat	gac	420
Asn	Asn	Lys	Ala	Val	Ala	Gly	Asp	Leu	Leu	Ser	Ser	Ser	Ser	Asp	Asp	
		65				70					75					
gct	gat	ttc	tct	gat	tct	gtt	ttg	aag	tat	ata	agc	caa	gtt	ctt	atg	468
Ala	Asp	Phe	Ser	Asp	Ser	Val	Leu	Lys	Tyr	Ile	Ser	Gln	Val	Leu	Met	
					85					90					95	
gaa	gag	gat	atg	gaa	gag	aag	cct	tgt	atg	ttt	cat	gac	gct	ttg	gct	516
Glu	Glu	Asp	Met	Glu	Glu	Lys	Pro	Cys	Met	Phe	His	Asp	Ala	Leu	Ala	
					100				105					110		
ctt	caa	gct	gct	gag	aaa	tct	ctc	tat	gag	gct	ctt	ggg	gag	aaa	tac	564
Leu	Gln	Ala	Ala	Glu	Lys	Ser	Leu	Tyr	Glu	Ala	Leu	Gly	Glu	Lys	Tyr	
			115					120					125			
cct	tct	tcg	tct	tct	gct	tct	tct	gtg	gat	cat	cct	gag	aga	ttg	gct	612
Pro	Ser	Ser	Ser	Ser	Ala	Ser	Ser	Val	Asp	His	Pro	Glu	Arg	Leu	Ala	
			130				135						140			
agt	gat	agc	cct	gac	ggg	tct	tgt	tca	ggg	ggg	gct	ttt	agt	gat	tac	660
Ser	Asp	Ser	Pro	Asp	Gly	Ser	Cys	Ser	Gly	Gly	Ala	Phe	Ser	Asp	Tyr	
		145				150					155					
gct	agc	acc	act	acc	act	act	tcc	tct	gat	tct	cac	tgg	agt	gtt	gat	708
Ala	Ser	Thr	Thr	Thr	Thr	Thr	Ser	Ser	Asp	Ser	His	Trp	Ser	Val	Asp	
		160				165				170					175	
ggg	ttg	gag	aat	aga	cct	tct	tgg	tta	cat	aca	cct	atg	ccg	agt	aat	756
Gly	Leu	Glu	Asn	Arg	Pro	Ser	Trp	Leu	His	Thr	Pro	Met	Pro	Ser	Asn	
			180					185						190		
ttt	gtt	ttc	cag	tct	act	tct	agg	tcc	aac	agt	gtc	acc	ggg	ggg	ggg	804
Phe	Val	Phe	Gln	Ser	Thr	Ser	Arg	Ser	Asn	Ser	Val	Thr	Gly	Gly	Gly	
			195					200					205			
ggg	ggg	ggg	aat	agt	gcg	gtt	tac	ggg	tca	ggg	ttt	ggc	gat	gat	ttg	852
Gly	Gly	Gly	Asn	Ser	Ala	Val	Tyr	Gly	Ser	Gly	Phe	Gly	Asp	Asp	Leu	
			210			215						220				
gtt	tcg	aat	atg	ttt	aaa	gat	gat	gaa	ttg	gct	atg	cag	ttc	aag	aaa	900
Val	Ser	Asn	Met	Phe	Lys	Asp	Asp	Glu	Leu	Ala	Met	Gln	Phe	Lys	Lys	
		225				230					235					
ggg	gtt	gag	gaa	gct	agt	aag	ttc	ctt	cct	aag	tct	tct	cag	ctc	ttt	948
Gly	Val	Glu	Glu	Ala	Ser	Lys	Phe	Leu	Pro	Lys	Ser	Ser	Gln	Leu	Phe	
		240			245					250					255	
att	gat	gtg	gat	agt	tac	atc	cct	atg	aat	tct	ggg	tcc	aag	gaa	aat	996
Ile	Asp	Val	Asp	Ser	Tyr	Ile	Pro	Met	Asn	Ser	Gly	Ser	Lys	Glu	Asn	

	260	265	270	
	ggt tct gag gtt ttt gtt aag acg gag aag aaa gat gag aca gag cat			1044
	Gly Ser Glu Val Phe Val Lys Thr	Glu Lys Lys Asp	Glu Thr Glu His	
	275	280	285	
	cat cat cat cat agc tat gct cct cct ccc aac aga tta act ggt aag			1092
	His His His His Ser Tyr Ala Pro Pro Asn Arg Leu Thr Gly Lys			
	290	295	300	
	aaa agc cat tgg cgc gac gaa gat gaa gat ttc gtt gaa gaa aga agt			1140
	Lys Ser His Trp Arg Asp Glu Asp Glu Asp Phe Val Glu Glu Arg Ser			
	305	310	315	
	aac aag caa tca gct gtt tat gtt gag gaa agc gag ctt tct gaa atg			1188
	Asn Lys Gln Ser Ala Val Tyr Val Glu Glu Ser Glu Leu Ser Glu Met			
	320	325	330	335
	ttt gat aag atc ttg gta tgt ggc cct ggg aaa cct gta tgc att ctt			1236
	Phe Asp Lys Ile Leu Val Cys Gly Pro Gly Lys Pro Val Cys Ile Leu			
	340	345	350	
	aac cag aac ttt cct aca gaa tcc gct aaa gtc gtg acc gca cag tca			1284
	Asn Gln Asn Phe Pro Thr Glu Ser Ala Lys Val Val Thr Ala Gln Ser			
	355	360	365	
	aat gga gca aag att cgt ggg aag aaa tca act tct act agt cat agt			1332
	Asn Gly Ala Lys Ile Arg Gly Lys Lys Ser Thr Ser Thr Ser His Ser			
	370	375	380	
	aac gat tct aag aaa gaa act gct gat ttg agg act ctt ttg gtg tta			1380
	Asn Asp Ser Lys Lys Glu Thr Ala Asp Leu Arg Thr Leu Leu Val Leu			
	385	390	395	
	tgt gca caa gct gta tca gtg gat gat cgt aga acc gcc aac gaa atg			1428
	Cys Ala Gln Ala Val Ser Val Asp Asp Arg Arg Thr Ala Asn Glu Met			
	400	405	410	415
	cta agg cag ata cga gag cat tct tcg cct cta ggc aat ggt tca gag			1476
	Leu Arg Gln Ile Arg Glu His Ser Ser Pro Leu Gly Asn Gly Ser Glu			
	420	425	430	
	cgg ttg gct cat tat ttt gca aat agt ctt gaa gca cgc tta gct ggg			1524
	Arg Leu Ala His Tyr Phe Ala Asn Ser Leu Glu Ala Arg Leu Ala Gly			
	435	440	445	
	acc ggt aca cag atc tac acc gct tta tct tcg aag aaa acg tct gca			1572
	Thr Gly Thr Gln Ile Tyr Thr Ala Leu Ser Ser Lys Lys Thr Ser Ala			
	450	455	460	
	gca gac atg ttg aag gct tac cag aca tac atg tcg gtc tgc cct ttc			1620
	Ala Asp Met Leu Lys Ala Tyr Gln Thr Tyr Met Ser Val Cys Pro Phe			
	465	470	475	
	aag aaa gct gct atc ata ttt gct aac cac agc atg atg cgt ttc act			1668
	Lys Lys Ala Ala Ile Ile Phe Ala Asn His Ser Met Met Arg Phe Thr			
	480	485	490	495

gca aac gcc aac acg atc cac ata ata gat ttc gga ata tct tac ggt Ala Asn Ala Asn Thr Ile His Ile Ile Asp Phe Gly Ile Ser Tyr Gly	1716
500 505 510	
ttt cag tgg cct gct ctg att cat cgc ctc tcg ctc agc aga cct ggt Phe Gln Trp Pro Ala Leu Ile His Arg Leu Ser Leu Ser Arg Pro Gly	1764
515 520 525	
ggg tgc cct aag ctt cga att acc ggt ata gag ctt cct cag cgc ggt Gly Ser Pro Lys Leu Arg Ile Thr Gly Ile Glu Leu Pro Gln Arg Gly	1812
530 535 540	
ttt aga cca gcg gaa gag ttc agg aga cag gtc atc gct tgg ctc gat Phe Arg Pro Ala Glu Glu Phe Arg Arg Gln Val Ile Ala Trp Leu Asp	1860
545 550 555	
act gtc agc gac aca atg ttc cgt ttg agt aca acg caa ttg ctc aga Thr Val Ser Asp Thr Met Phe Arg Leu Ser Thr Thr Gln Leu Leu Arg	1908
560 565 570 575	
aat ggg gaa acg atc caa gtc gaa gac tta aag ctt cga caa gga gag Asn Gly Glu Thr Ile Gln Val Glu Asp Leu Lys Leu Arg Gln Gly Glu	1956
580 585 590	
tat gtg gtt gtg aac tct ttg ttc cgt ttc agg aac ctt cta gat gag Tyr Val Val Val Asn Ser Leu Phe Arg Phe Arg Asn Leu Leu Asp Glu	2004
595 600 605	
acc gtt ctg gta aac agc ccg aga gat gca gtt ttg aag ctg ata aga Thr Val Leu Val Asn Ser Pro Arg Asp Ala Val Leu Lys Leu Ile Arg	2052
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625 630 635	
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660 665 670	
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675 680 685	
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705 710 715	

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 Leu Glu Lys Glu Leu Met Gln Asn Leu Lys Leu Lys Ile Glu Asn Gly
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 740 745 750

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 Gly Trp Lys Gly Arg Ile Val Tyr Ala Ser Ser Leu Trp Val Pro Ser
 755 760 765

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 Ser Ser

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 Pro Pro Glu Ala Tyr Pro Ser Gln Asn Asn Asn Asn Asn Ile Asn
 50 55 60
 Asn Lys Ala Val Ala Gly Asp Leu Leu Ser Ser Ser Ser Asp Asp Ala
 65 70 75 80
 Asp Phe Ser Asp Ser Val Leu Lys Tyr Ile Ser Gln Val Leu Met Glu
 85 90 95
 Glu Asp Met Glu Glu Lys Pro Cys Met Phe His Asp Ala Leu Ala Leu
 100 105 110
 Gln Ala Ala Glu Lys Ser Leu Tyr Glu Ala Leu Gly Glu Lys Tyr Pro
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Ser Ser Ser Ser Ala Ser Ser Val Asp His Pro Glu Arg Leu Ala Ser
130 135 140

Asp Ser Pro Asp Gly Ser Cys Ser Gly Gly Ala Phe Ser Asp Tyr Ala
145 150 155 160

Ser Thr Thr Thr Thr Thr Ser Ser Asp Ser His Trp Ser Val Asp Gly
165 170 175

Leu Glu Asn Arg Pro Ser Trp Leu His Thr Pro Met Pro Ser Asn Phe
180 185 190

Val Phe Gln Ser Thr Ser Arg Ser Asn Ser Val Thr Gly Gly Gly Gly
195 200 205

Gly Gly Asn Ser Ala Val Tyr Gly Ser Gly Phe Gly Asp Asp Leu Val
210 215 220

Ser Asn Met Phe Lys Asp Asp Glu Leu Ala Met Gln Phe Lys Lys Gly
225 230 235 240

Val Glu Glu Ala Ser Lys Phe Leu Pro Lys Ser Ser Gln Leu Phe Ile
245 250 255

Asp Val Asp Ser Tyr Ile Pro Met Asn Ser Gly Ser Lys Glu Asn Gly
260 265 270

Ser Glu Val Phe Val Lys Thr Glu Lys Lys Asp Glu Thr Glu His His
275 280 285

His His His Ser Tyr Ala Pro Pro Pro Asn Arg Leu Thr Gly Lys Lys
290 295 300

Ser His Trp Arg Asp Glu Asp Glu Asp Phe Val Glu Glu Arg Ser Asn
305 310 315 320

Lys Gln Ser Ala Val Tyr Val Glu Glu Ser Glu Leu Ser Glu Met Phe
325 330 335

Asp Lys Ile Leu Val Cys Gly Pro Gly Lys Pro Val Cys Ile Leu Asn
340 345 350

Gln Asn Phe Pro Thr Glu Ser Ala Lys Val Val Thr Ala Gln Ser Asn

355

360

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Gly Ala Lys Ile Arg Gly Lys Lys Ser Thr Ser Thr Ser His Ser Asn
370 375 380

Asp Ser Lys Lys Glu Thr Ala Asp Leu Arg Thr Leu Leu Val Leu Cys
385 390 395 400

Ala Gln Ala Val Ser Val Asp Asp Arg Arg Thr Ala Asn Glu Met Leu
405 410 415

Arg Gln Ile Arg Glu His Ser Ser Pro Leu Gly Asn Gly Ser Glu Arg
420 425 430

Leu Ala His Tyr Phe Ala Asn Ser Leu Glu Ala Arg Leu Ala Gly Thr
435 440 445

Gly Thr Gln Ile Tyr Thr Ala Leu Ser Ser Lys Lys Thr Ser Ala Ala
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Asp Met Leu Lys Ala Tyr Gln Thr Tyr Met Ser Val Cys Pro Phe Lys
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Val Ser Asp Thr Met Phe Arg Leu Ser Thr Thr Gln Leu Leu Arg Asn
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Gly Glu Thr Ile Gln Val Glu Asp Leu Lys Leu Arg Gln Gly Glu Tyr
580 585 590

Val Val Val Asn Ser Leu Phe Arg Phe Arg Asn Leu Leu Asp Glu Thr
595 600 605

Val Leu Val Asn Ser Pro Arg Asp Ala Val Leu Lys Leu Ile Arg Lys
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Ile Asn Pro Asn Val Phe Ile Pro Ala Ile Leu Ser Gly Asn Tyr Asn
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Ala Pro Phe Phe Val Thr Arg Phe Arg Glu Ala Leu Phe His Tyr Ser
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Ala Val Phe Asp Met Cys Asp Ser Lys Leu Ala Arg Glu Asp Glu Met
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Arg Leu Met Tyr Glu Lys Glu Phe Tyr Gly Arg Glu Ile Val Asn Val
675 680 685

Val Ala Cys Glu Gly Thr Glu Arg Val Glu Arg Pro Glu Thr Tyr Lys
690 695 700

Gln Trp Gln Ala Arg Leu Ile Arg Ala Gly Phe Arg Gln Leu Pro Leu
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Glu Lys Glu Leu Met Gln Asn Leu Lys Leu Lys Ile Glu Asn Gly Tyr
725 730 735

Asp Lys Asn Phe Asp Val Asp Gln Asn Gly Asn Trp Leu Leu Gln Gly
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aac aca tcc act cag aag agg aaa aga aga cct gca ggt acc cca gat Asn Thr Ser Thr Gln Lys Arg Lys Arg Arg Pro Ala Gly Thr Pro Asp	144
35 40 45	
cca gat gca gaa gtt gtg tct tta tca cca aga act ctt ctt gaa tca Pro Asp Ala Glu Val Val Ser Leu Ser Pro Arg Thr Leu Leu Glu Ser	192
50 55 60	
gac aga tac ata tgt gag atc tgt aac caa ggg ttt caa aga gac cag Asp Arg Tyr Ile Cys Glu Ile Cys Asn Gln Gly Phe Gln Arg Asp Gln	240
65 70 75 80	
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85 90 95	
aaa aga gac aac aac ata gag gtg aag aaa cga gtc tat gtt tgc cct Lys Arg Asp Asn Asn Ile Glu Val Lys Lys Arg Val Tyr Val Cys Pro	336
100 105 110	
gaa ccc act tgc ctt cac cat aat cct tgt cat gct ctg gga gat ctt Glu Pro Thr Cys Leu His His Asn Pro Cys His Ala Leu Gly Asp Leu	384
115 120 125	
gtc ggc atc aaa aaa cat ttc aga aga aaa cat agt aac cat aag caa Val Gly Ile Lys Lys His Phe Arg Arg Lys His Ser Asn His Lys Gln	432
130 135 140	
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165 170 175	
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180 185 190	
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act ccg tct agt gaa acc aat tac ggc ggt aca gtt gcg gtt acg act Thr Pro Ser Ser Glu Thr Asn Tyr Gly Gly Thr Val Ala Val Thr Thr	720
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Ile Leu Thr Asn Ser Ser Asn Asn Leu Asn Leu Glu Leu Gln Leu Leu	
260 265 270	
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275 280 285	
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Val Lys Glu Pro Ser His His His Asn His Asn His Asp Thr Thr Asn	
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Leu Asn Leu Ser Ile Ala Pro Ser Ser Ser Tyr Gln His Tyr Asn Asn	
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Phe Asp Arg Ile Lys Glu Ile Met Ala Ser Glu Gln Ile Met Lys Ile	
325 330 335	
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Ala Met Lys Glu Lys Ala Tyr Ala Glu Glu Ala Lys Arg Glu Ala Lys	
340 345 350	
agg caa cga gag ata gcg gaa aac gag ttt gca aat gcc aaa aag att	1104
Arg Gln Arg Glu Ile Ala Glu Asn Glu Phe Ala Asn Ala Lys Lys Ile	
355 360 365	
agg caa aaa gca caa gct gaa ctc gag aga gct aag ttt tta aag gaa	1152
Arg Gln Lys Ala Gln Ala Glu Leu Glu Arg Ala Lys Phe Leu Lys Glu	
370 375 380	
caa tct atg aag aag ata agt tca acg atc atg cag gtc act tgt caa	1200
Gln Ser Met Lys Lys Ile Ser Ser Thr Ile Met Gln Val Thr Cys Gln	
385 390 395 400	
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Thr Cys Lys Gly Gln Phe Gln Ala Val Ala Val Pro Ala Ala Thr Ala	
405 410 415	
gat gag acg tct ctt gtc gtg agt tac atg tcg tca gcg aat act gac	1296
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 Pro Asp Ala Glu Val Val Ser Leu Ser Pro Arg Thr Leu Leu Glu Ser
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 Asp Arg Tyr Ile Cys Glu Ile Cys Asn Gln Gly Phe Gln Arg Asp Gln
 65 70 75 80
 Asn Leu Gln Met His Arg Arg Arg His Lys Val Pro Trp Lys Leu Leu
 85 90 95
 Lys Arg Asp Asn Asn Ile Glu Val Lys Lys Arg Val Tyr Val Cys Pro
 100 105 110
 Glu Pro Thr Cys Leu His His Asn Pro Cys His Ala Leu Gly Asp Leu
 115 120 125
 Val Gly Ile Lys Lys His Phe Arg Arg Lys His Ser Asn His Lys Gln
 130 135 140
 Trp Val Cys Glu Arg Cys Ser Lys Gly Tyr Ala Val Gln Ser Asp Tyr
 145 150 155 160
 Lys Ala His Leu Lys Thr Cys Gly Thr Arg Gly His Ser Cys Asp Cys
 165 170 175
 Gly Arg Val Phe Ser Arg Val Glu Ser Phe Ile Glu His Gln Asp Asn
 180 185 190
 Cys Ser Ala Arg Arg Val His Arg Glu Pro Pro Arg Pro Pro Gln Thr
 195 200 205
 Ala Val Thr Val Pro Ala Cys Ser Ser Arg Thr Ala Ser Thr Val Ser
 210 215 220
 Thr Pro Ser Ser Glu Thr Asn Tyr Gly Gly Thr Val Ala Val Thr Thr
 225 230 235 240

Pro Gln Pro Leu Glu Gly Arg Pro Ile His Gln Arg Ile Ser Ser Ser
245 250 255

Ile Leu Thr Asn Ser Ser Asn Asn Leu Asn Leu Glu Leu Gln Leu Leu
260 265 270

Pro Leu Ser Ser Asn Gln Asn Pro Asn Gln Glu Asn Gln Gln Gln Lys
275 280 285

Val Lys Glu Pro Ser His His His Asn His Asn His Asp Thr Thr Asn
290 295 300

Leu Asn Leu Ser Ile Ala Pro Ser Ser Ser Tyr Gln His Tyr Asn Asn
305 310 315 320

Phe Asp Arg Ile Lys Glu Ile Met Ala Ser Glu Gln Ile Met Lys Ile
325 330 335

Ala Met Lys Glu Lys Ala Tyr Ala Glu Glu Ala Lys Arg Glu Ala Lys
340 345 350

Arg Gln Arg Glu Ile Ala Glu Asn Glu Phe Ala Asn Ala Lys Lys Ile
355 360 365

Arg Gln Lys Ala Gln Ala Glu Leu Glu Arg Ala Lys Phe Leu Lys Glu
370 375 380

Gln Ser Met Lys Lys Ile Ser Ser Thr Ile Met Gln Val Thr Cys Gln
385 390 395 400

Thr Cys Lys Gly Gln Phe Gln Ala Val Ala Val Pro Ala Ala Thr Ala
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 Thr Glu Ala Glu Gly Ala His Ser Gln Thr Glu Ala Glu Gly Ala His
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 Ser Ser Ser Ser Ser Ala Gly His Lys Arg Gly Trp Leu Gly Ile Asp
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 Ser Ala Pro Ile Pro Ser Ser Phe Ala Arg Val Asp Ser Ser His Asn
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 Pro Ile Glu Glu Ser Met Ser Lys Ala Phe Pro Glu Glu Ala Arg Glu
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 Lys Lys Arg Arg Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly Lys Trp
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 Ala Ala Glu Ile Arg Asp Pro His Arg Ala Ala Arg Val Trp Leu Gly
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 Thr Phe Asp Thr Ala Glu Ala Ala Ala Arg Ala Tyr Asp Glu Ala Ala
 115 120 125
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 Leu Arg Phe Arg Gly Asn Lys Ala Lys Leu Leu Phe Pro Glu Asp Val
 130 135 140 145
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 Arg Ile Leu Pro Pro Pro Pro Leu Leu Arg Ser Pro Ala Asp Thr
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 Val Ala Asn Lys Ala Glu Glu Asp Leu Ile Asn Tyr Trp Ser Tyr Thr
 165 170 175
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 Lys Leu Leu Gln Ser Ser Gly Gln Arg Ser Phe Leu Glu Arg Gly Gln
 180 185 190
 gaa gag agt agt aac ata ttt gaa cat tca cca atg gaa caa cct ctg 803

Glu Glu Ser Ser Asn Ile Phe Glu His Ser Pro Met Glu Gln Pro Leu
 195 200 205

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 Pro Pro Ser Ser Ser Gly Pro Ser Ser Ser Asn Phe Pro Ala Pro Ser
 210 215 220 225

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Asp Ser Ala Pro Ile Pro Ser Ser Phe Ala Arg Val Asp Ser Ser His
 50 55 60

Asn Pro Ile Glu Glu Ser Met Ser Lys Ala Phe Pro Glu Glu Ala Arg
 65 70 75 80

Glu Lys Lys Arg Arg Tyr Arg Gly Val Arg Gln Arg Pro Trp Gly Lys
 85 90 95

Trp Ala Ala Glu Ile Arg Asp Pro His Arg Ala Ala Arg Val Trp Leu
 100 105 110

Gly Thr Phe Asp Thr Ala Glu Ala Ala Ala Arg Ala Tyr Asp Glu Ala
 115 120 125

Ala Leu Arg Phe Arg Gly Asn Lys Ala Lys Leu Asn Phe Pro Glu Asp
 130 135 140

Val Arg Ile Leu Pro Pro Pro Pro Pro Leu Leu Arg Ser Pro Ala Asp
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Thr Val Ala Asn Lys Ala Glu Glu Asp Leu Ile Asn Tyr Trp Ser Tyr
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Thr Lys Leu Leu Gln Ser Ser Gly Gln Arg Ser Phe Leu Glu Arg Gly
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Gln Glu Glu Ser Ser Asn Ile Phe Glu His Ser Pro Met Glu Gln Pro
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Trp Thr Ala Glu Glu Asp Lys Lys Leu Ile Asn Phe Ile Leu Thr Asn
20 25 30

ggc cac tgt tgc tgg agg gct ttg ccg aag ctg gcc ggt ctc cgt cgc 144
Gly His Cys Cys Trp Arg Ala Leu Pro Lys Leu Ala Gly Leu Arg Arg
35 40 45

tgt ggg aag agc tgc cgt cta cgg tgg acc aat tat ctc cga cct gac 192
Cys Gly Lys Ser Cys Arg Leu Arg Trp Thr Asn Tyr Leu Arg Pro Asp
50 55 60

ttg aag aga ggt ctt ctc tcc gac gcc gag gaa cag ctt gtc atc gac 240
Leu Lys Arg Gly Leu Leu Ser Asp Ala Glu Glu Gln Leu Val Ile Asp
65 70 75 80

ctt cat gct ctt ctc ggc aac aga tgg tcc aag atc gct gca aga tta 288
Leu His Ala Leu Leu Gly Asn Arg Trp Ser Lys Ile Ala Ala Arg Leu
85 90 95

cca gga aga aca gac aac gaa ata aaa aat cat tgg aat act cat atc 336
Pro Gly Arg Thr Asp Asn Glu Ile Lys Asn His Trp Asn Thr His Ile
100 105 110

aag aag aag ctc ctt aag atg gaa atc gat cct tcg acc cat caa cct 384
Lys Lys Lys Leu Leu Lys Met Glu Ile Asp Pro Ser Thr His Gln Pro
115 120 125

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 145 150 155 160

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 Gly Thr Thr Thr Asn Thr Ile Asp Asp Ser Ile Ile Thr His Gln Asn
 165 170 175

 agt tca aat gat gat tat gaa tta ctt ggt gat ata att cat aat tat 576
 Ser Ser Asn Asp Asp Tyr Glu Leu Leu Gly Asp Ile Ile His Asn Tyr
 180 185 190

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 Gly Asp Leu Phe Asn Ile Leu Trp Thr Asn Asp Glu Pro Pro Leu Val
 195 200 205

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 Asp Asp Ala Ser Trp Ser Asn His Asn Val Gly Ile Gly Gly Thr Ala
 210 215 220

 gca gtt gca gcc tca gac aag aac aac act gct gcc gag gaa gat ttc 720
 Ala Val Ala Ala Ser Asp Lys Asn Asn Thr Ala Ala Glu Glu Asp Phe
 225 230 235 240

 ccg gaa aga tca ttt gaa aaa cag aac ggc gaa agt tgg atg ttc ttg 768
 Pro Glu Arg Ser Phe Glu Lys Gln Asn Gly Glu Ser Trp Met Phe Leu
 245 250 255

 gat tat tgc caa gaa ttt ggt gtt gaa gat ttt ggg ttc gag tgt tac 816
 Asp Tyr Cys Gln Glu Phe Gly Val Glu Asp Phe Gly Phe Glu Cys Tyr
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 Trp Thr Ala Glu Glu Asp Lys Lys Leu Ile Asn Phe Ile Leu Thr Asn
 20 25 30

 Gly His Cys Cys Trp Arg Ala Leu Pro Lys Leu Ala Gly Leu Arg Arg
 35 40 45

 Cys Gly Lys Ser Cys Arg Leu Arg Trp Thr Asn Tyr Leu Arg Pro Asp
 50 55 60

Leu Lys Arg Gly Leu Leu Ser Asp Ala Glu Glu Gln Leu Val Ile Asp
65 70 75 80

Leu His Ala Leu Leu Gly Asn Arg Trp Ser Lys Ile Ala Ala Arg Leu
85 90 95

Pro Gly Arg Thr Asp Asn Glu Ile Lys Asn His Trp Asn Thr His Ile
100 105 110

Lys Lys Lys Leu Leu Lys Met Glu Ile Asp Pro Ser Thr His Gln Pro
115 120 125

Leu Asn Lys Val Phe Thr Asp Thr Asn Leu Val Asp Lys Ser Glu Thr
130 135 140

Ser Ser Lys Ala Asp Asn Val Asn Asp Asn Lys Ile Val Glu Ile Asp
145 150 155 160

Gly Thr Thr Thr Asn Thr Ile Asp Asp Ser Ile Ile Thr His Gln Asn
165 170 175

Ser Ser Asn Asp Asp Tyr Glu Leu Leu Gly Asp Ile Ile His Asn Tyr
180 185 190

Gly Asp Leu Phe Asn Ile Leu Trp Thr Asn Asp Glu Pro Pro Leu Val
195 200 205

Asp Asp Ala Ser Trp Ser Asn His Asn Val Gly Ile Gly Gly Thr Ala
210 215 220

Ala Val Ala Ala Ser Asp Lys Asn Asn Thr Ala Ala Glu Glu Asp Phe
225 230 235 240

Pro Glu Arg Ser Phe Glu Lys Gln Asn Gly Glu Ser Trp Met Phe Leu
245 250 255

Asp Tyr Cys Gln Glu Phe Gly Val Glu Asp Phe Gly Phe Glu Cys Tyr
260 265 270

His Gly Phe Gly Gln Ser Ser Met Lys Thr Gly His Lys Asp
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atcgattaaa ttcaactcag ggttttttga ttctgaaag aagttaatct tcttcgaagg 240
cgattgcaaa agagtgtctt cgtgtgaatt tccactgag atg caa tca aaa ccg 294
Met Gln Ser Lys Pro
1 5
gga aga gaa aac gaa gag gaa gtc aat aat cac cat gct gtt cag cag 342
Gly Arg Glu Asn Glu Glu Glu Val Asn Asn His His Ala Val Gln Gln
10 15 20
ccg atg atg tat gca gag ccc tgg tgg aaa aac aac tcc ttt ggt gtt 390
Pro Met Met Tyr Ala Glu Pro Trp Trp Lys Asn Asn Ser Phe Gly Val
25 30 35
gta cct caa gcg aga cct tct gga att cca tca aat tcc tct tct ttg 438
Val Pro Gln Ala Arg Pro Ser Gly Ile Pro Ser Asn Ser Ser Ser Leu
40 45 50
gat tgc ccc aat ggt tcc gag tca aac gat gtt cat tca gca tct gaa 486
Asp Cys Pro Asn Gly Ser Glu Ser Asn Asp Val His Ser Ala Ser Glu
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gac ggt gcg ttg aat ggt gaa aac gat ggc act tgg aag gat tca caa 534
Asp Gly Ala Leu Asn Gly Glu Asn Asp Gly Thr Trp Lys Asp Ser Gln
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Ala Ala Thr Ser Ser Arg Ser Asp Asn His Gly Met Glu Gly Asn Asp
90 95 100
cca gcg ctc tct atc cgt aac atg cat gat cag cca ctt gta caa cca 630
Pro Ala Leu Ser Ile Arg Asn Met His Asp Gln Pro Leu Val Gln Pro
105 110
cca gag ctt gtt gga cac tat atc gct tgt gtc cca aac cca tat cag 678
Pro Glu Leu Val Gly His Tyr Ile Ala Cys Val Pro Asn Pro Tyr Gln
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gat cca tat tat ggg gga ttg atg gga gca tat ggt cat cag caa ttg 726
Asp Pro Tyr Tyr Gly Gly Leu Met Gly Ala Tyr Gly His Gln Gln Leu
135 140 145
ggt ttt cgt cca tat ctt gga atg cct cgt gaa aga aca gct ctg cca 774
Gly Phe Arg Pro Tyr Leu Gly Met Pro Arg Glu Arg Thr Ala Leu Pro
150 155 160 165

ctt gac atg gca caa gag ccc gtt tat gtg aat gca aag cag tac gag 822
 Leu Asp Met Ala Gln Glu Pro Val Tyr Val Asn Ala Lys Gln Tyr Glu
 170 175 180

gga att cta agg cga aga aaa gca cgt gcc aag gca gag cta gag agg 870
 Gly Ile Leu Arg Arg Lys Ala Arg Ala Lys Ala Glu Leu Glu Arg
 185 190 195

aaa gtc atc cgg gac aga aag cca tat ctt cac gag tca aga cac aag 918
 Lys Val Ile Arg Asp Arg Lys Pro Tyr Leu His Glu Ser Arg His Lys
 200 205 210

cat gca atg aga agg gca cga gcg agt gga ggc cgg ttt gcg aag aaa 966
 His Ala Met Arg Arg Ala Arg Ala Ser Gly Gly Arg Phe Ala Lys Lys
 215 220 225

agt gag gta gaa gcg gga gag gat gca gga ggg aga gac aga gaa agg 1014
 Ser Glu Val Glu Ala Gly Glu Asp Ala Gly Arg Asp Arg Glu Arg
 230 235 240 245

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 Gly Ser Ala Thr Asn Ser Ser Gly Ser Glu Gln Val Glu Thr Asp Ser
 250 255 260

aat gag acc ctg aat tct tct ggt gca cca taa taaaaaaagc caaagctctg 1115
 Asn Glu Thr Leu Asn Ser Ser Gly Ala Pro
 265 270

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His Ala Val Gln Gln Pro Met Met Tyr Ala Glu Pro Trp Trp Lys Asn
 20 25 30

Asn Ser Phe Gly Val Val Pro Gln Ala Arg Pro Ser Gly Ile Pro Ser
 35 40 45

Asn Ser Ser Ser Leu Asp Cys Pro Asn Gly Ser Glu Ser Asn Asp Val
 50 55 60

His Ser Ala Ser Glu Asp Gly Ala Leu Asn Gly Glu Asn Asp Gly Thr
65 70 75 80

Trp Lys Asp Ser Gln Ala Ala Thr Ser Ser Arg Ser Asp Asn His Gly
85 90 95

Met Glu Gly Asn Asp Pro Ala Leu Ser Ile Arg Asn Met His Asp Gln
100 105 110

Pro Leu Val Gln Pro Pro Glu Leu Val Gly His Tyr Ile Ala Cys Val
115 120 125

Pro Asn Pro Tyr Gln Asp Pro Tyr Tyr Gly Gly Leu Met Gly Ala Tyr
130 135 140

Gly His Gln Gln Leu Gly Phe Arg Pro Tyr Leu Gly Met Pro Arg Glu
145 150 155 160

Arg Thr Ala Leu Pro Leu Asp Met Ala Gln Glu Pro Val Tyr Val Asn
165 170 175

Ala Lys Gln Tyr Glu Gly Ile Leu Arg Arg Arg Lys Ala Arg Ala Lys
180 185 190

Ala Glu Leu Glu Arg Lys Val Ile Arg Asp Arg Lys Pro Tyr Leu His
195 200 205

Glu Ser Arg His Lys His Ala Met Arg Arg Ala Arg Ala Ser Gly Gly
210 215 220

Arg Phe Ala Lys Lys Ser Glu Val Glu Ala Gly Glu Asp Ala Gly Gly
225 230 235 240

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Asp Leu His His Gly Ser Ala Ser Asp Thr His Ser Ser Glu Leu Pro	
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Ser Phe Ser Leu Pro Pro Tyr Pro Gln Met Ile Met Glu Ala Ile Glu	
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Ser Leu Asn Asp Lys Asn Gly Cys Asn Lys Thr Thr Ile Ala Lys His	
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atc gag tcg act caa caa act cta ccg ccg tca cac atg acg ctg ctc	308
Ile Glu Ser Thr Gln Gln Thr Leu Pro Pro Ser His Met Thr Leu Leu	
55 60 65	
agc tac cat ctc aac cag atg aag aaa acc ggt cag cta atc atg gtg	356
Ser Tyr His Leu Asn Gln Met Lys Lys Thr Gly Gln Leu Ile Met Val	
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Lys Asn Asn Tyr Met Lys Pro Asp Pro Asp Ala Pro Pro Lys Arg Gly	
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Arg Gly Arg Pro Pro Lys Gln Lys Thr Gln Ala Glu Ser Asp Ala Ala	
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Ala Ala Ala Val Val Ala Ala Thr Val Val Ser Thr Asp Pro Pro Arg	
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Ser Arg Gly Arg Pro Pro Lys Pro Lys Asp Pro Ser Glu Pro Pro Gln	
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Glu Lys Val Ile Thr Gly Ser Gly Arg Pro Arg Gly Arg Pro Pro Lys	
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Arg Pro Arg Thr Asp Ser Glu Thr Val Ala Ala Pro Glu Pro Ala Ala	
165 170 175	
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Gln Ala Thr Gly Glu Arg Arg Gly Arg Gly Pro Pro Lys Val Lys	
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 35 40 45

Ala Lys His Ile Glu Ser Thr Gln Gln Thr Leu Pro Pro Ser His Met
 50 55 60

Thr Leu Leu Ser Tyr His Leu Asn Gln Met Lys Lys Thr Gly Gln Leu
 65 70 75 80

Ile Met Val Lys Asn Asn Tyr Met Lys Pro Asp Pro Asp Ala Pro Pro
 85 90 95

Lys Arg Gly Arg Gly Arg Pro Pro Lys Gln Lys Thr Gln Ala Glu Ser
 100 105 110

Asp Ala Ala Ala Ala Val Val Ala Ala Thr Val Val Ser Thr Asp
 115 120 125

Pro Pro Arg Ser Arg Gly Arg Pro Pro Lys Pro Lys Asp Pro Ser Glu
 130 135 140

Pro Pro Gln Glu Lys Val Ile Thr Gly Ser Gly Arg Pro Arg Gly Arg
 145 150 155 160

Pro Pro Lys Arg Pro Arg Thr Asp Ser Glu Thr Val Ala Ala Pro Glu
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 Ala Val Ser Ala Asp Leu Ser Phe Gly Ala Pro Leu Tyr Val Val Glu
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 Ser Met Cys Met Arg Cys Gln Glu Asn Gly Thr Thr Arg Phe Leu Leu
 35 40 45

acc tta att cct cac ttc aga aag gtc tta ata tct gca ttt gaa tgt 192
 Thr Leu Ile Pro His Phe Arg Lys Val Leu Ile Ser Ala Phe Glu Cys
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ccg cat tgc ggg gaa agg aat aat gaa gtt cag ttc gca ggc gag att 240
 Pro His Cys Gly Glu Arg Asn Asn Glu Val Gln Phe Ala Gly Glu Ile
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caa ccc cgt gga tgc tgt tac aat cta gag gtt cta gct ggt gat gtg 288
 Gln Pro Arg Gly Cys Cys Tyr Asn Leu Glu Val Leu Ala Gly Asp Val
 85 90 95

aag ata ttt gac cgg caa gtt gtg aaa tct gaa tca gcc act att aag 336
 Lys Ile Phe Asp Arg Gln Val Val Lys Ser Glu Ser Ala Thr Ile Lys
 100 105 110

att cct gaa ctg gat ttt gag att cca cca gag gcc caa cgt gga agt 384
 Ile Pro Glu Leu Asp Phe Glu Ile Pro Pro Glu Ala Gln Arg Gly Ser
 115 120 125

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 Leu Ser Thr Val Glu Gly Ile Leu Ala Arg Ala Ala Asp Glu Leu Ser
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 145 150 155 160

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 Ile Asp Gln Phe Leu Ser Lys Leu Arg Ala Cys Ala Lys Ala Glu Thr
 165 170 175

tcc ttc acc ttc att ttg gat gat cct gct gga aac agt ttc att gag 576

Ser Phe Thr Phe Ile Leu Asp Asp Pro Ala Gly Asn Ser Phe Ile Glu	624
180 185 190	
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Asn Pro His Ala Pro Ser Pro Asp Pro Ser Leu Thr Ile Lys Phe Tyr	
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Glu Arg Thr Pro Glu Gln Ser Gln Ala Thr Leu Gly Tyr Val Ala Asn Pro	
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Ser Gln Ala Gly Gln Ser Glu Gly Ser Leu Gly Ala Pro Val Met Thr	
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Phe Pro Ser Thr Cys Gly Ala Cys Thr Glu Pro Cys Glu Thr Arg Met	
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Phe Lys Ile Glu Ile Pro Tyr Phe Gln Glu Val Ile Val Met Ala Ser	
260 265 270	
aca tgt gac agt tgt ggc tat cgt aat tct gag ttg aag cct ggt ggt	864
Thr Cys Asp Ser Cys Gly Tyr Arg Asn Ser Glu Leu Lys Pro Gly Gly	
275 280 285	
gca att cct gaa aag gga aag aag att act ctc tct gtg agg aac att	912
Ala Ile Pro Glu Lys Gly Lys Lys Ile Thr Leu Ser Val Arg Asn Ile	
290 295 300	
aca gac ctt agc cga gat gtt atc aag tgc gac act gca gga gtg ata	960
Thr Asp Leu Ser Arg Asp Val Ile Lys Ser Asp Thr Ala Gly Val Ile	
305 310 315 320	
atc cca gaa ctt gat ctg gag cta gct ggt ggt aca ctt ggt gga atg	1008
Ile Pro Glu Leu Asp Leu Glu Leu Ala Gly Gly Thr Leu Gly Gly Met	
325 330 335	
gta aca aca gtt gaa ggg ttg gtt aca cag atc aga gaa agc cta gcg	1056
Val Thr Thr Val Glu Gly Leu Val Thr Gln Ile Arg Glu Ser Leu Ala	
340 345 350	
aga gtt cac gga ttc act ttt ggt gat agt atg gaa gag agt aag ttg	1104
Arg Val His Gly Phe Thr Phe Gly Asp Ser Met Glu Glu Ser Lys Leu	
355 360 365	
aac aaa tgg aga gaa ttt gga gcc agg ctc act aag ctc cta agc ttt	1152
Asn Lys Trp Arg Glu Phe Gly Ala Arg Leu Thr Lys Leu Leu Ser Phe	
370 375 380	
gaa cag ccg tgg aca ttg att ctt gat gat gaa tta gca aat tcc ttt	1200
Glu Gln Pro Trp Thr Leu Ile Leu Asp Asp Glu Leu Ala Asn Ser Phe	
385 390 395 400	
att gca cca gta aca gat gat atc aaa gat gac cat cag ctc aca ttt	1248
Ile Ala Pro Val Thr Asp Asp Ile Lys Asp Asp His Gln Leu Thr Phe	

405	410	415	
gaa gag tac gag agg tca tgg gat	caa aac gag gag ttg ggt ctc aac		1296
Glu Glu Tyr Glu Arg Ser Trp Asp	Gln Asn Glu Glu Leu Gly Leu Asn		
420	425	430	
gac ata gat act tct tca gct gat	gct gct tat gaa tcc aca gag acg		1344
Asp Ile Asp Thr Ser Ser Ala Asp	Ala Ala Tyr Glu Ser Thr Glu Thr		
435	440	445	
act aaa tta cct taa			1359
Thr Lys Leu Pro			
450			
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Met Asp Asn Lys Asn Asp Gln Asp Ile Asp Val Arg Ser Val Val Glu			
1	5	10	15
Ala Val Ser Ala Asp Leu Ser Phe Gly Ala Pro Leu Tyr Val Val Glu			
20	25	30	
Ser Met Cys Met Arg Cys Gln Glu Asn Gly Thr Thr Arg Phe Leu Leu			
35	40	45	
Thr Leu Ile Pro His Phe Arg Lys Val Leu Ile Ser Ala Phe Glu Cys			
50	55	60	
Pro His Cys Gly Glu Arg Asn Asn Glu Val Gln Phe Ala Gly Glu Ile			
65	70	75	80
Gln Pro Arg Gly Cys Cys Tyr Asn Leu Glu Val Leu Ala Gly Asp Val			
85	90	95	
Lys Ile Phe Asp Arg Gln Val Val Lys Ser Glu Ser Ala Thr Ile Lys			
100	105	110	
Ile Pro Glu Leu Asp Phe Glu Ile Pro Pro Glu Ala Gln Arg Gly Ser			
115	120	125	
Leu Ser Thr Val Glu Gly Ile Leu Ala Arg Ala Ala Asp Glu Leu Ser			
130	135	140	
Ala Leu Gln Glu Glu Arg Lys Lys Val Asp Pro Lys Thr Ala Glu Ala			
145	150	155	160

Ile Asp Gln Phe Leu Ser Lys Leu Arg Ala Cys Ala Lys Ala Glu Thr
165 170 175

Ser Phe Thr Phe Ile Leu Asp Asp Pro Ala Gly Asn Ser Phe Ile Glu
180 185 190

Asn Pro His Ala Pro Ser Pro Asp Pro Ser Leu Thr Ile Lys Phe Tyr
195 200 205

Glu Arg Thr Pro Glu Gln Gln Ala Thr Leu Gly Tyr Val Ala Asn Pro
210 215 220

Ser Gln Ala Gly Gln Ser Glu Gly Ser Leu Gly Ala Pro Val Met Thr
225 230 235 240

Phe Pro Ser Thr Cys Gly Ala Cys Thr Glu Pro Cys Glu Thr Arg Met
245 250 255

Phe Lys Ile Glu Ile Pro Tyr Phe Gln Glu Val Ile Val Met Ala Ser
260 265 270

Thr Cys Asp Ser Cys Gly Tyr Arg Asn Ser Glu Leu Lys Pro Gly Gly
275 280 285

Ala Ile Pro Glu Lys Gly Lys Lys Ile Thr Leu Ser Val Arg Asn Ile
290 295 300

Thr Asp Leu Ser Arg Asp Val Ile Lys Ser Asp Thr Ala Gly Val Ile
305 310 315 320

Ile Pro Glu Leu Asp Leu Glu Leu Ala Gly Gly Thr Leu Gly Gly Met
325 330 335

Val Thr Thr Val Glu Gly Leu Val Thr Gln Ile Arg Glu Ser Leu Ala
340 345 350

Arg Val His Gly Phe Thr Phe Gly Asp Ser Met Glu Glu Ser Lys Leu
355 360 365

Asn Lys Trp Arg Glu Phe Gly Ala Arg Leu Thr Lys Leu Leu Ser Phe
370 375 380

Glu Gln Pro Trp Thr Leu Ile Leu Asp Asp Glu Leu Ala Asn Ser Phe

385

390

395

400

Ile Ala Pro Val Thr Asp Asp Ile Lys Asp Asp His Gln Leu Thr Phe
405 410 415

Glu Glu Tyr Glu Arg Ser Trp Asp Gln Asn Glu Glu Leu Gly Leu Asn
420 425 430

Asp Ile Asp Thr Ser Ser Ala Asp Ala Ala Tyr Glu Ser Thr Glu Thr
435 440 445

Thr Lys Leu Pro
450